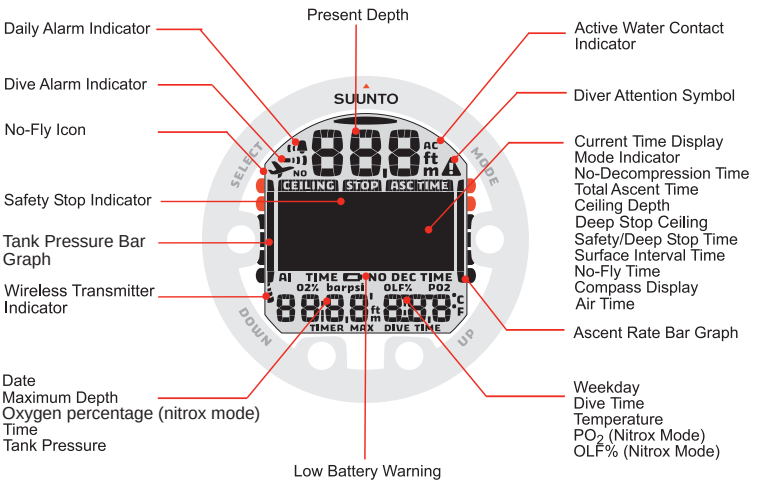
EN

VYPER AIR

USER'S GUIDE

SUUNTO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Present Depth
Active Water Contact Indicator
Dive Alarm Indicator
Diver Attention Symbol
No-Fly Icon
Current Time Display
Mode Indicator
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1. WELCOME TO THE WORLD OF SUUNTO DIVING INSTRUMENTS

Suunto Vyper AIR was designed to help you get the most out of your diving. After reading this manual and becoming familiar with the functions of your dive computer, you'll be ready to take the plunge into a whole new world of diving.

With integrated digital compass and gas switching, Suunto Vyper AIR simplifies your diving experience because all the information you need relating to depth, time, tank pressure, decompression status, and direction is available on one easy-to-read screen.

To get the most out of your Suunto Vyper AIR please read this instruction manual carefully and make sure you understand the use, displays, and limitations of the instrument before using it. To make life easier, we've included a glossary of dive-specific terminology at the back of the manual.

2. WARNINGS, CAUTIONS, AND NOTES

Throughout this manual, important safety icons are displayed. Three classifications are used to separate these icons by their order of importance:

WARNING *is used in connection with a procedure or situation that could result in serious injury or death*

CAUTION *is used in connection with a procedure or situation that could result in damage to the device*

NOTE *is used to emphasize important information*

Before you go on to read the manual itself, it is extremely important that you read the following warnings. These warnings are intended to maximize your safety while using Suunto Vyper AIR and must not be ignored.

WARNING *READ THIS MANUAL! Carefully read this manual in its entirety, paying close attention to all the warnings listed below, including Section 5. BEFORE DIVING. Make sure that you fully understand the use, displays and limitations of the dive computer, because any confusion resulting from neglecting to follow this user's manual or from improper use of this device could cause you to commit errors that may lead to serious injury or death.*

WARNING *NOT FOR PROFESSIONAL USE! Suunto dive computers are intended for recreational use only. The demands of commercial or professional diving may expose the diver to depths and conditions that tend to increase the risk of decompression illness (DCI). Therefore, Suunto strongly recommends that the device is not used for any commercial or professional diving activities.*

WARNING *ONLY DIVERS TRAINED IN THE PROPER USE OF SCUBA DIVING EQUIPMENT SHOULD USE A DIVE COMPUTER! No dive computer can replace the need for proper dive training. Insufficient or improper training may cause you to commit errors that may lead to serious injury or death.*

WARNING *THERE IS ALWAYS A RISK OF DECOMPRESSION ILLNESS (DCI) FOR ANY DIVE PROFILE, EVEN IF YOU FOLLOW THE DIVE PLAN PRESCRIBED BY DIVE TABLES OR A DIVE COMPUTER. NO PROCEDURE, DIVE COMPUTER, OR DIVE TABLE CAN PREVENT THE POSSIBILITY OF DCI OR OXYGEN TOXICITY! An individual's physiological make-up can vary from day to day. The dive computer cannot account for these variations. You are strongly advised to remain well within the exposure limits provided by the instrument to minimize the risk of DCI. As an added precaution, you should consult a physician regarding your fitness before diving.*

WARNING *SUUNTO STRONGLY RECOMMENDS THAT SPORT DIVERS LIMIT THEIR MAXIMUM DEPTH TO 40 M/130 FT OR TO THE DEPTH CALCULATED BY THE COMPUTER BASED ON THE SELECTED O_2% AND A MAXIMUM PO_2 OF 1.4 BAR!*

WARNING *DIVES THAT REQUIRE DECOMPRESSION STOPS ARE NOT RECOMMENDED. YOU SHOULD ASCEND AND BEGIN DECOMPRESSION IMMEDIATELY WHEN THE DIVE COMPUTER SHOWS YOU THAT A DECOMPRESSION STOP IS REQUIRED! Note the blinking ASC TIME symbol and the upward pointing arrow.*

WARNING *USE BACK-UP INSTRUMENTS! Make sure that you use back-up instrumentation, including a depth gauge, submersible pressure gauge, timer or watch, and have access to decompression tables whenever diving with the dive computer.*

WARNING *PERFORM PRE-CHECKS! Always activate and check the device before diving in order to ensure that all Liquid Crystal Display (LCD) segments are completely displayed, that the device has not run out of battery power, and that the oxygen, altitude, personal, Safety/Deep Stop, and RGBM adjustments are correct.*

WARNING *YOU ARE ADVISED TO AVOID FLYING ANY TIME THE COMPUTER COUNTS DOWN THE NO-FLY TIME. ALWAYS ACTIVATE THE COMPUTER TO CHECK THE REMAINING NO-FLY TIME PRIOR TO FLYING! Flying or traveling to a higher altitude within the no-fly time can greatly increase the risk of DCI. Review the recommendations given by Divers Alert Network (DAN) in Section 7.4. Flying after diving.*

WARNING *THE DIVE COMPUTER SHOULD NEVER BE TRADED OR SHARED BETWEEN USERS WHILE IT IS IN OPERATION! Its information will not apply to someone who has not been wearing it throughout a dive, or sequence of repetitive dives. Its dive profiles must match that of the user. If it is left on the surface during any dive, the dive computer will give inaccurate information for subsequent dives. No dive computer can take into account dives made without the computer. Thus, any diving activity up to four days prior to initial use of the computer may cause misleading information and must be avoided.*

WARNING *DO NOT EXPOSE THE SUUNTO Vyper^{AIR}'S OPTIONAL PRESSURE TRANSMITTER TO ANY GAS MIX CONTAINING MORE THAN 40% OXYGEN! Enriched air with greater oxygen content presents a risk of fire or explosion and serious injury or death.*

WARNING *DO NOT DIVE WITH A CYLINDER OF ENRICHED AIR IF YOU HAVE NOT PERSONALLY VERIFIED ITS CONTENTS AND ENTERED THE ANALYZED VALUE INTO YOUR DIVE COMPUTER! Failure to verify cylinder contents and enter the appropriate O_2% into your dive computer will result in incorrect dive planning information.*

WARNING *THE DIVE COMPUTER WILL NOT ACCEPT FRACTIONAL PERCENTAGE VALUES OF OXYGEN CONCENTRATION. DO NOT ROUND UP FRACTIONAL PERCENTAGES! For example, 31.8% oxygen should be entered as 31%. Rounding up will cause nitrogen percentages to be understated and will affect decompression calculations. If you want to adjust the computer to provide more conservative calculations, use the personal adjustment feature to affect decompression calculations, or reduce the PO_2 setting to affect oxygen exposure.*

WARNING *SELECT THE CORRECT ALTITUDE ADJUSTMENT SETTING! When diving at altitudes greater than 300 m/1,000 ft the Altitude Adjustment feature must be correctly selected in order for the computer to calculate the decompression status. The dive computer is not intended for use at altitudes greater than 3,000 m/10,000 ft. Failure to select the correct Altitude Adjustment setting, or diving above the maximum altitude limit will result in erroneous dive and planning data.*

WARNING *SELECT THE CORRECT PERSONAL ADJUSTMENT SETTING! Whenever it is believed that factors that tend to increase the possibility of DCI exist, it is recommended that you use this option to make the calculations more conservative. Failure to select the correct Personal Adjustment setting will result in erroneous dive and planning data.*

WARNING *This device contains a Lithium cell battery. To reduce the risk of fire or burns, do not disassemble, crush, puncture, short external contacts, or dispose of in fire or water. Replace only with manufacturer-specified batteries. Recycle or dispose of used batteries properly.*

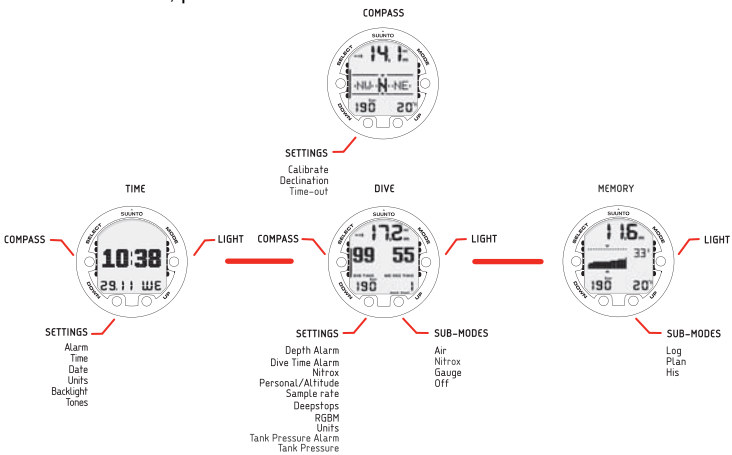
NOTE *It is not possible to change between AIR, NITROX and GAUGE modes before the instrument has counted down the no-fly time.*
There are, however, exceptions to this: You can change from AIR to NITROX mode, as well as from AIR or NITROX mode to GAUGE mode even during the no-fly time.
When planning both air and nitrox dives during the same dive series, you should set the instrument in NITROX mode and modify the gas mix accordingly.

In GAUGE mode the no-fly time is always 48 hours.

3. SUUNTO AT A GLANCE

3.1. Navigating in the menus

Suunto Vyper AIR has four main operating modes - TIME mode (TIME), DIVE mode (DIVE), PLAN mode (PLAN), and MEMORY mode (MEMORY) – as well as the COMPASS submode, which can be activated from either TIME or DIVE modes. To toggle between the main modes, press the MODE button. To select a submode in DIVE, PLAN and MEMORY modes, press the UP/DOWN buttons.



3.2. Button symbols and functions

The table below explains the main functions of the dive computer's buttons. The buttons and their use are explained in more detail in the relevant sections of the manual.

Table 3.1. Button symbols and functions

Symbol	Button	Press	Main functions
	MODE	Short	Switch between main modes Switch from submode to main mode Activate backlight in DIVE mode
	MODE	Long	Activate backlight in other modes
	SELECT	Short	Select a submode Select and accept settings
	SELECT	Long	Activate compass in TIME and DIVE modes
	UP	Short	Toggle between alternative displays Change submode Increase values

Symbol	Button	Press	Main functions
	UP	Long	Enable gas switching in NITROX mode
	DOWN	Short	Toggle between alternative displays Change submode Decrease values
	DOWN	Long	Enter Setting mode

4. GETTING STARTED WITH YOUR SUUNTO VYPER AIR

To get the most out of your Suunto Vyper AIR, take some time to personalize it and really make it YOUR computer. Set the correct time and date, as well as the alarms and tones, unit and backlight settings. Then, calibrate and test the compass function. If you are going to use the optional wireless pressure transmitter, install it and enable the pressure transmission in the Suunto Vyper AIR's settings then test the pressure transmission.

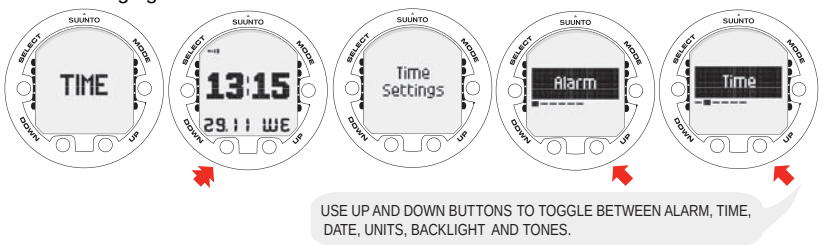
Suunto Vyper AIR is a very user-friendly dive computer, and you will quickly become familiar with its functions. Make absolutely sure that you know your computer and have it set up as you want it BEFORE getting into the water.

4.1. TIME mode settings

The first thing you'll want to do with your Suunto Vyper AIR, is to modify the TIME mode settings: the time, alarm, date, units, backlight, and tones. In this section, we look at how to do this.

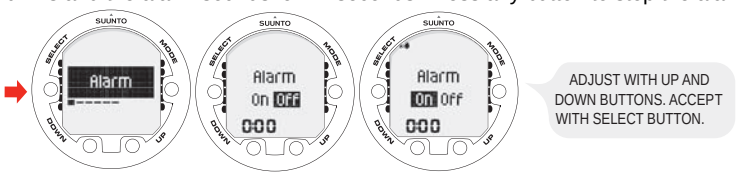
NOTE *The display is illuminated by holding down the MODE button for more than 2 seconds.*

The following figure shows how to enter the TIME SETTINGS menu.



4.1.1. Setting the alarm

The dive computer has a daily alarm function. When the daily alarm activates, the screen blinks and the alarm sounds for 24 seconds. Press any button to stop the alarm.

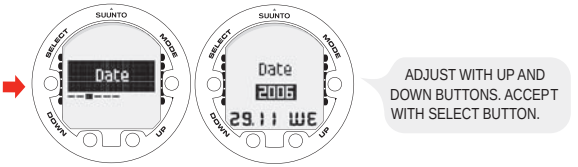


4.1.2. Setting the time

In the TIME SETTING mode, you are able to set the hour, minute, and second, as well as choose between 12 and 24 hour display.

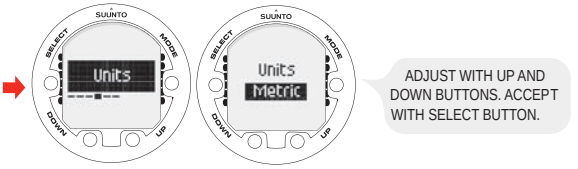
4.1.3. Setting the date

Use the DATE SETTING mode to set the year, month, and day. The day of the week is automatically calculated in accordance with the date.



4.1.4. Setting the units

In the UNITS SETTING mode you can choose to have the units displayed in either the metric or imperial system - meters/feet, Celsius/Fahrenheit etc.

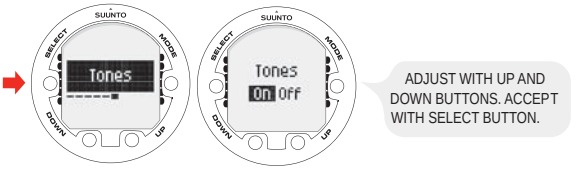


4.1.5. Setting the backlight

Use the BACKLIGHT SETTING mode to turn the backlight on or off and to define how long it stays on for (5, 10, 20, 30, or 60 seconds). When the backlight is turned off, it does not illuminate when an alarm sounds.

4.1.6. Setting the tones

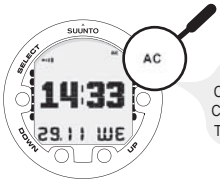
The TONE SETTING mode allows you to activate or deactivate the tones.



NOTE *When the tones are off, there are no audible alarms.*

4.2. AC water contacts

The water and data transfer contact is located on the rear of the case. When submerged, the water contact poles are connected by the conductivity of the water and the “AC” symbol appears on the display. The AC text is shown until the water contact deactivates.

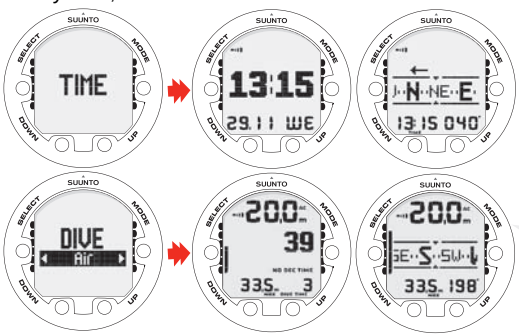


AC APPEARS IN THE TOP RIGHT CORNER OF THE DISPLAY, WHEN THE DIVE COMPUTER IS IN CONTACT WITH WATER. THIS ALSO ACTIVATES THE DIVE MODE.

Contamination or dirt on the water contact may prevent this automatic activation. It is therefore important that the water contact is kept clean. The contact can be cleaned with fresh water and a soft brush, for example a tooth brush.

4.3. Learning how to use your compass

Suunto Vyper AIR integrates a digital compass, which can be used both while diving and on dry land, and can be accessed from either the DIVE mode or TIME mode.



IF ACCESSED FROM TIME MODE, TIME AND BEARING ARE DISPLAYED AT THE BOTTOM OF THE SCREEN.

IF ACCESSED FROM DIVE MODE, CURRENT DEPTH AND TIME OR MAXIMUM DEPTH, AS WELL AS BEARING OR DIVE TIME OR TEMPERATURE ARE DISPLAYED.

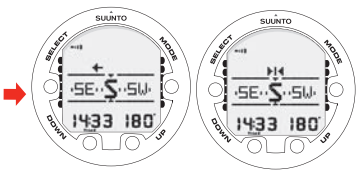
NOTE *When accessed from DIVE mode, toggle between the alternative displays by pressing the UP/DOWN buttons.*

4.3.1. Compass display

The Suunto Vyper AIR displays the compass as a graphical representation of a compass rose. The rose displays the cardinal and half cardinal points, in addition to which, the current bearing is also displayed numerically.

4.3.2. Locking a bearing

A bearing can be locked to help you follow a selected course, and directional arrows point towards the locked bearing. Locked bearings are stored in the memory for later analysis and are available the next time the compass is activated.



TO LOCK A BEARING, PRESS SELECT.

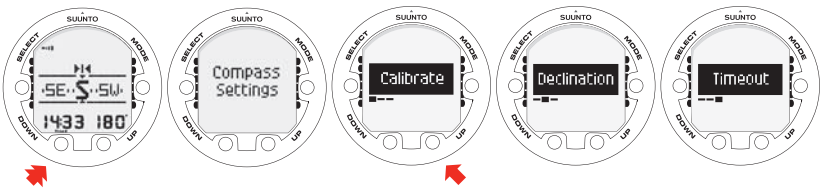
The Suunto Vyper AIR also provides help for navigating square and triangular patterns, as well as navigating a return heading. This is made possible by following graphical symbols in the center of the compass display:

Table 4.1. Locked bearing symbols

Symbol	Explanation
	You are traveling towards the locked bearing
	You are 90 (or 270) degrees from the locked bearing
	You are 180 degrees from the locked bearing
	You are 120 (or 240) degrees from the locked bearing

4.3.3. Compass settings

You can define the compass settings (calibration, declination and time-out) when in COMPASS mode:



Calibration

Because of changes in the surrounding magnetic field, the Suunto Vyper AIR electronic compass occasionally needs to be re-calibrated. During the calibration process, the compass adjusts itself to the surrounding magnetic field and to tilting. As a basic rule, you should calibrate the compass whenever it doesn't seem to operate properly, or after replacing the dive computer's battery.

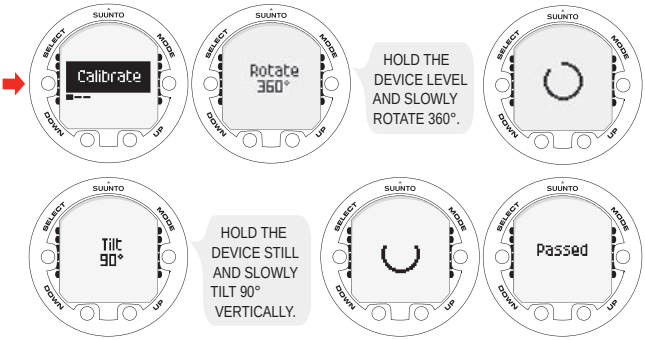
First the compass is level calibrated and after a successful level calibration, the compass is tilt calibrated. The tilt calibration compensates for tilting the compass in any direction in angles of up to 45°.

Strong electromagnetic fields, such as power lines, stereo speakers, and magnets can affect the compass calibration. It is therefore advisable to calibrate the compass if your Suunto Vyper AIR has been exposed to these fields.

NOTE *When traveling overseas, it is recommended that you recalibrate the compass at the new location before using it.*

NOTE *Remember to hold the Suunto Vyper AIR level during the level calibration process. A deviation of ± 5° is allowed in any direction from the horizontal plane during level calibration.*

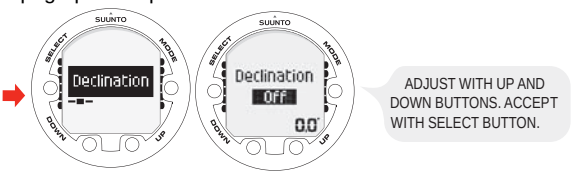
To calibrate the compass:



If the calibration fails several times in a row, it is possible that you are in an area with sources of magnetism, such as large metal objects, power lines or electric appliances. Move to another location and try to calibrate the compass again. If the calibration continues to fail, contact an authorized Suunto service center.

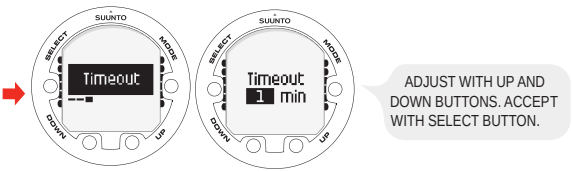
Declination

You can compensate for the difference between true north and magnetic north by adjusting the compass declination. The declination can be found, for example, from sea charts or topographic maps of the local area.



Time-out

You can set the compass time-out to 1, 3, or 5 minutes. After the set time has passed from the latest button press, the dive computer returns to the TIME or DIVE mode from the COMPASS mode.



You can exit the COMPASS mode also by long pressing the SELECT button.

5. BEFORE DIVING

Do not attempt to use the dive computer without reading this user's manual in its entirety, including all the warnings. Make sure that you fully understand the use, displays, and limitations of the instrument. If you have any questions about the manual or the Suunto Vyper AIR, please contact your Suunto representative before diving with the dive computer.

Always remember that YOU ARE RESPONSIBLE FOR YOUR OWN SAFETY!

When used properly, Suunto Vyper AIR is an outstanding tool for assisting properly trained, certified divers in planning and executing sport dives. It is NOT A SUBSTITUTE FOR CERTIFIED SCUBA INSTRUCTION, including training in the principles of decompression.

WARNING *Diving with enriched air mixtures (nitrox) exposes you to risks that are different from those associated with diving with standard air. These risks are not obvious, and require training to understand and avoid. Risks include possible serious injury or death.*

Do not attempt to dive with any gas mix other than standard air without first receiving certified training in this specialty.

5.1. The Suunto RGBM/Deep Stop Algorithm

Suunto's Reduced Gradient Bubble Model (RGBM), utilized in the Suunto Vyper AIR, predicts both dissolved and free gas in the blood and tissues of divers. It is a significant advance on the classic Haldane models, which do not predict free gas. The advantage of Suunto RGBM is additional safety through its ability to adapt to a variety of situations and dive profiles.

The Suunto Vyper AIR uses traditional recommended safety stops as well as deep stops.

In order to optimize the response to different increased risk situations, an additional category of stop, referred to as a Mandatory Safety Stop, has been introduced. The combination of stop types depends on the user settings and the specific dive situation.

To get the most from the RGBM safety benefits, refer to *Section 10.2. RGBM*.

5.2. Emergency ascents

In the unlikely event that the dive computer malfunctions during a dive, follow the emergency procedures provided by your certified dive training agency or, alternatively, follow these steps:

1. Assess the situation calmly and then move promptly to less than 18 m/60 ft.
2. At 18 m/60 ft, slow down your ascent rate to 10 m/33 ft per minute and move to a depth between 3 and 6 m/10 and 20 ft.
3. Stay there for as long as your air supply will safely allow. After reaching the surface, do not dive for at least 24 hours.

5.3. Dive computer limitations

While the dive computer's calculations are based on current decompression research and technology, it is important to realize that the computer cannot monitor the actual physiological functions of an individual diver. All decompression schedules currently known to the authors, including the U.S. Navy Tables, are based on theoretical mathematical models, which are intended to serve as a guide to reduce the probability of decompression illness.

5.4. Nitrox

Diving with nitrox provides you with an opportunity to increase bottom times or reduce the risk of decompression illness by reducing the nitrogen content in the gas mix.

However, when the gas mix is altered, the oxygen content of the mix is generally increased. This increase exposes the diver to an oxygen toxicity risk not usually considered in recreational diving. In order to manage this risk, the dive computer tracks the time and intensity of the oxygen exposure and provides the diver with information to adjust the dive plan in order to maintain oxygen exposure within reasonably safe limits.

In addition to the physiological effects of enriched air on the body, there are operational considerations to be addressed when handling altered breathing mixes. Elevated concentrations of oxygen present a fire or explosion hazard. Consult the manufacturer of your equipment to check its compatibility with nitrox.

5.5. Audible and visual alarms

The dive computer has audible and visual alarms that advise when important limits are approached or that prompt you to acknowledge preset alarms. The table below describes the different alarms and their meanings.

Table 5.1. Audible and visual alarm types

Alarm type	Alarm reason
Short single beep	Dive computer is activated. Dive computer automatically returns to the TIME mode.
Three beeps with a three second interval	Cylinder pressure reaches 50 bar/725 psi. The cylinder pressure display will start to blink. Cylinder pressure reaches the selected alarm pressure. Calculated remaining air time reaches zero.
Three beeps with a three second interval and activated backlight	No-decompression dive turns into a decompression stop dive. An arrow pointing upwards and the blinking ascent warning ASC TIME will appear.
Continuous beeps and activated backlight	Maximum allowed ascent rate, 10 m per min/33 ft per min, is exceeded. Ascent rate bar graph blinks and STOP warning appears. Decompression ceiling depth is exceeded. An error warning Er and a downward pointing arrow appear. You should immediately descend to, or below, the ceiling. The instrument will otherwise enter a permanent Error mode within three minutes, indicated by a permanent Er.

You can set alarms for maximum depth, dive time and tank pressure. See also *Section 5.8. DIVE mode settings* and *Section 4.1. TIME mode settings*.

Table 5.2. Preset alarm types

Alarm type	Alarm reason
Continuous beep series for 24 seconds Maximum depth blinks as long as the current depth value exceeds the preset value.	Preset maximum depth has been exceeded.
Continuous beep series for 24 seconds or until any button is pressed. Dive time blinks for one minute.	Preset dive time has been exceeded.

Alarm type	Alarm reason
Continuous beep series for 24 seconds or until any button is pressed. Current time blinks for one minute	Preset alarm time is reached.

Table 5.3. Oxygen alarms in NITROX mode

Alarm type	Alarm reason
Continuous beeps for 3 minutes and activated backlight	Set oxygen partial pressure limit is exceeded. The alternative display is replaced with a current blinking PO_2 value. You should immediately ascend above the PO_2 depth limit. OLF value reaches 80%. The OLF value will start to blink. OLF value reaches 100%. The OLF value will blink.

NOTE *When the backlight is turned OFF, it does not illuminate when an alarm is activated.*

WARNING *WHEN THE OXYGEN LIMIT FRACTION INDICATES THAT THE MAXIMUM LIMIT IS REACHED, YOU MUST IMMEDIATELY TAKE ACTION TO REDUCE OXYGEN EXPOSURE. Failure to take action to reduce oxygen exposure after the warning is given can rapidly increase the risk of oxygen toxicity, injury, or death.*

5.6. Error conditions

The dive computer has warning indicators that alert you to react to certain situations that would significantly increase the risk of DCI. If you do not respond to its warnings, the dive computer will enter an Error mode, indicating that the risk of DCI has greatly increased. If you understand the dive computer and operate it sensibly, it is very unlikely you will ever put the instrument into the Error mode.

Omitted decompression

The Error mode results from omitted decompression, i.e. when you stay above the ceiling for more than three minutes. During this three-minute period the Er warning is shown and the audible alarm beeps. After this, the dive computer will enter a permanent Error mode. The instrument will continue to function normally if you descend below the ceiling within this three-minute period.

Once in the permanent Error mode, only the Er warning is shown in the center window. The dive computer will not show times for ascent or stops. However, all the other displays will function as before to provide information for ascent. You should immediately ascend to a depth of 3 to 6 m/10 to 20 ft and remain at this depth until air supply limitations require you to surface.

After surfacing, you should not dive for a minimum of 48 hours. During the permanent Error mode, the Er text will be displayed in the center window and the planning mode will be disabled.

5.7. Wireless transmission

The Vyper ^{AIR} can be used together with an optional wireless cylinder pressure transmitter that easily attaches to the high-pressure port of the regulator. By using the transmitter, you can benefit from receiving cylinder pressure and remaining air time data direct to your wrist.

In order to use the transmitter, the wireless integration needs to be enabled in your Suunto Vyper AIR's settings. To enable or disable the wireless integration refer to *Section 5.8.10. Setting the tank pressure*.

5.7.1. Installing the wireless transmitter

When purchasing the Suunto Vyper AIR, we strongly recommend that you have your Suunto representative attach the transmitter to the first stage of your regulator.

However, if you decide to attach it yourself, do the following:

1. Remove the high pressure (HP) port plug on the first stage of your regulator using an appropriate tool.
2. Thread the high pressure transmitter of the Suunto Vyper AIR into the HP port of your regulator with your fingers. DO NOT OVERTIGHTEN! Maximum torque is 6 Nm/4.4 lbsft or 53 lbsin. The seal is based on a static O-ring, not force!
3. Attach the regulator to the scuba cylinder and slowly open the valve. Check for leaks by submerging the regulator first stage in water. If leaks are detected, check the condition of the O-ring and sealing surfaces.

5.7.2. Pairing and code selection

In order to receive wireless data, the transmitter and the Suunto Vyper AIR need to be paired. During the pairing procedure, the transmitter and dive computer select a common transmission code.

The transmitter is activated when the pressure exceeds 15bar/218 psi and it then starts sending pressure data together with a code number. During the pairing procedure, the Suunto Vyper AIR stores the code number and starts displaying pressure values that are received with that code. This coding procedure inhibits data mix-up from other divers also using a Suunto Vyper AIR transmitter.

When there is no stored code, the Suunto Vyper AIR displays “cd:--” and receives data with lowered sensitivity from a very short distance only. By taking the Suunto Vyper AIR close to the transmitter, it will store the received code and start receiving with full sensitivity and display data received with this code only. The code is stored until you reset it manually.

To pair the transmitter and the Suunto Vyper AIR dive computer:

1. Make sure that the transmitter is properly attached to the regulator’s HP port and that the regulator is properly attached to the cylinder.
2. Ensure that the Suunto Vyper AIR is turned on, and that the wireless integration is enabled in the Suunto Vyper AIR settings (HP set ON, see *Section 5.8.11. Setting the HP code*). The Vyper AIR should display “cd:--” in the lower left corner of the alternative display.
3. Slowly open the cylinder valve fully and pressurize the regulator. The transmitter starts transmitting when the pressure exceeds 15 bar/218 psi.
4. Take the Suunto Vyper AIR wrist unit close to the transmitter. The unit will then quickly display the selected code number and then start displaying the transmitted cylinder pressure. The wireless transmitter indicator is displayed every time the Suunto Vyper AIR receives a valid signal.

WARNING *If there are several divers using Suunto Vyper AIR diving instruments with wireless transmission, always ensure that each diver is using a different code before starting the dive.*

Reset the transmitter's code manually, see Section 5.8.11. Setting the HP code.

The transmitter will then select a new code. The Suunto Vyper AIR must be in “cd:--“ mode to pair on the new code. This procedure can be used if, for example, your dive buddy has the same code and you need to change it.

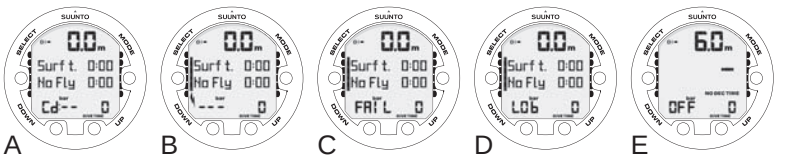
NOTE *In order to save battery energy, the transmitter shuts off if the pressure remains unchanged for more than 5 minutes, and it will continue transmitting with the saved code when any pressure change is measured.*

5.7.3. Transmitting data

After the pairing procedure, the Suunto Vyper AIR will receive cylinder pressure data from the transmitter. The pressure is displayed in either bars or psi, depending on the unit selected. Any time the Suunto Vyper AIR receives an appropriate signal it flashes the wireless transmitter indicator in the display's lower left corner.

Table 5.4. Pressure transmission related displays

Display	Indication	Figure
Cd:--	Set Code. No code stored, Suunto Vyper AIR ready for pairing with transmitter.	A
- - -	Pressure reading over 360 bar/5220 psi.	B
FAIL	Pressure reading has not been updated for more than one minute. The latest valid pressure reading is displayed intermittently. After five minutes, "FAIL" is displayed intermittently with "---". Transmitter is out of range, in power saving mode or on another channel. Activate the transmitter by breathing off the regulator, and recode the wrist unit if necessary.	C
LOB	Pressure transmitter battery voltage is low. The pressure reading is displayed intermittently. Change the transmitter battery!	D
OFF	Pairing has not been conducted between the dive computer and the transmitter before start of dive. No cylinder data available.	E

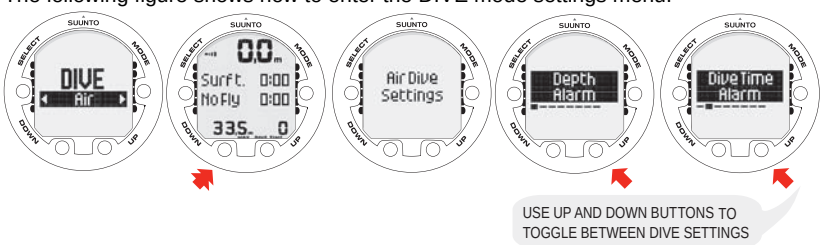


A B C D E

5.8. DIVE mode settings

Suunto Vyper AIR has several user-definable functions, as well as depth and time-related alarms that you can set according to your personal preferences. The DIVE mode settings are dependent on the dive submode chosen (AIR, NITROX, GAUGE), so that, for example, nitrox settings are only available in the NITROX submode.

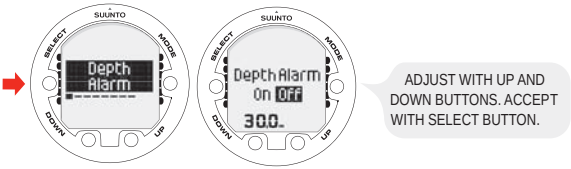
The following figure shows how to enter the DIVE mode settings menu.



NOTE *Some settings cannot be changed until 5 minutes has elapsed after the dive.*

5.8.1. Setting the depth alarm

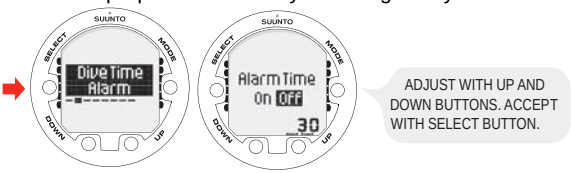
You can set a depth alarm in the dive computer.



The depth alarm is factory-set to 30 m/100 ft, but you can adjust it according to your personal preference, or switch it off altogether. The depth range can be set from 3 m to 100 m/9 ft to 328 ft.

5.8.2. Setting the dive-time alarm

The Suunto Vyper AIR has a dive-time alarm setting which, when activated, can be used for several purposes to add to your diving safety.



NOTE *With a range of 1 - 999 minutes, the alarm can be set to your planned bottom time, for example.*

5.8.3. Setting the nitrox values

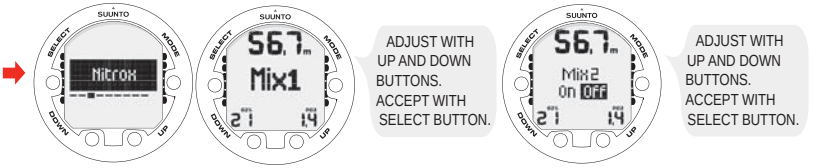
If set to the NITROX mode, the correct oxygen percentage of the gas in your cylinder (and additional gases) must always be entered into the computer to ensure correct nitrogen and oxygen calculations. In addition, the oxygen partial pressure limit must be set. When in the NITROX setting mode, the equivalent allowed maximum depth, based on the chosen setting, will also be displayed.

Settings for an additional mix (MIX2) are made similarly, but with the additional selection of “ON” or “OFF”.

In order to minimize the risk of error during a dive, it is highly recommended that the mixes are set in the proper order. This means that as the mix number rises, so does oxygen content, and this is the order they are usually used during the dive. Before a dive, only set to “ON” the mixes you actually have available and remember to check the set values to make sure they are correct.

The default oxygen percentage (O_2%) setting is 21% (air) and oxygen partial pressure (PO_2) setting 1.4 bar.

After entering values for MIX1, you can enable/disable and set an additional gas mix - MIX2.



NOTE

If MIX2 is set ON, settings for all mixes are stored until changed. If MIX2 has an oxygen content of 22% or greater, settings for all mixes are stored until changed.

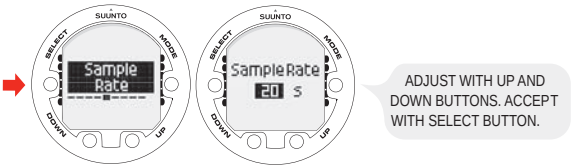
5.8.4. Setting the personal/altitude adjustments

The current Altitude and Personal Adjustment settings are displayed in the startup screen when entering the DIVE mode. If the mode does not match the altitude or personal conditions (see *Section 5.9.4. Diving at altitude* and *Section 5.9.5. Personal adjustments*), it is imperative that you enter the correct selection before diving. Use Altitude Adjustment to select the correct altitude and use Personal Adjustment to add an extra level of conservatism.

5.8.5. Setting the sample rate

The sample rate controls how often the depth, time, tank pressure, and water temperature is stored in the memory.

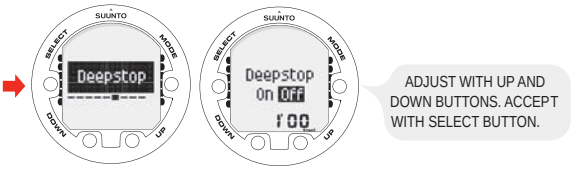
You can set the dive profile sample rate to 1, 10, 20, 30, or 60 seconds. The factory default setting is 20 seconds.



5.8.6. Setting the Safety Stops/Deep Stops

The Deep Stop setting allows you to view Deep Stops. If Deep Stops are set to OFF, only the traditional Safety Stop calculation is used.

If set to ON, iterative Deep Stops will be prompted as well. The length of the individual Deep Stops can be set to 1 or 2 minutes.



5.8.7. Setting the RGBM values

For certain divers and diving conditions, it may be desirable to set the attenuated RGBM mode. The selection is displayed during the DIVE mode startup. The options are full RGBM effects (100%), and attenuated RGBM (50%).

5.8.8. Setting the units

Use Unit Settings to choose between metric (meters/celsius/bar) and imperial (feet/fahrenheit/psi) units.

5.8.9. Setting the tank pressure alarm

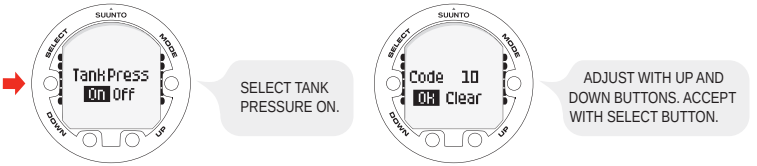
The tank pressure alarm can be set "ON" or "OFF" and in the range of 10 - 200 bar. The alarm is the secondary cylinder pressure alarm point. The alarm is activated when the tank pressure drops below the set limit. The 50 bar alarm, however, is fixed and cannot be changed.

5.8.10. Setting the tank pressure

The wireless transmission can be set “ON” or “OFF” depending whether the optional wireless pressure transmitter is used or not. No cylinder pressure-related data is shown, nor data reception made, when this selection is “OFF”.

5.8.11. Setting the HP code

The HP Code setting allows you to verify the selected code and to erase the stored code. It also enables re-pairing if necessary.



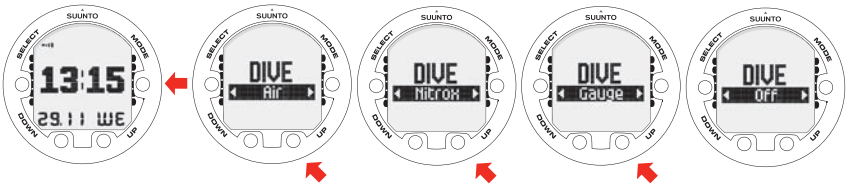
5.9. Activation and pre-checks

This section describes how to activate the DIVE mode and explains the pre-checks that it is highly recommended you perform before you get into the water.

5.9.1. Accessing DIVE mode

The Suunto Vyper AIR has three diving modes: AIR mode for diving with standard air only, NITROX mode for diving with oxygen enriched mixtures, and GAUGE mode for use as a bottom timer and for freediving.

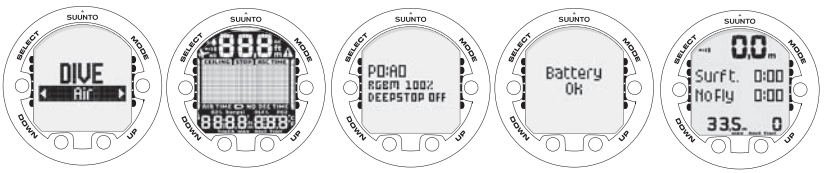
The OFF mode disables the DIVE mode, and allows the TIME mode to be used underwater. The chosen dive mode is displayed when the DIVE mode is accessed, and you can toggle between the submodes by pressing the UP/DOWN buttons.



5.9.2. DIVE mode activation

The dive computer activates automatically when submerged deeper than 0.5 m/1.5 ft. **However, it is necessary to activate the DIVE mode BEFORE diving to check the altitude and personal adjustment settings, battery condition, oxygen settings etc.**

After activation, all graphical display elements are turned on, and the backlight and the beep are activated. After this, the selected altitude and personal settings are displayed, as well as the RGBM and Deep Stop status. A few seconds later the battery power indicator is shown.



At this time, perform your pre-checks, making sure that:

- the instrument operates in the correct mode and provides a complete display (AIR/NITROX/GAUGE mode)
- the battery level is ok
- the altitude, personal adjustment, Safety/Deep stops, and RGBM settings are correct
- the instrument displays correct units of measurement (Metric/Imperial)
- the instrument displays the correct temperature and depth (0.0 m/0 ft)
- the alarm beeps

If the optional wireless pressure transmitter is used ensure that:

- the pressure transmitter has been properly attached and the cylinder valve is open
- the transmitter and the wrist unit have been properly paired on a suitable code

- the pressure transmitter is working (wireless transmitter indicator blinks, cylinder pressure is displayed), and that there is no low battery warning displayed
- you have enough air for your planned dive. You should also check the pressure reading against your back-up pressure gauge

And, if set to NITROX mode, make sure that:

- the correct number of mixes is set and that the oxygen percentages are adjusted according to the measured nitrox blends in your cylinders
- the correct oxygen percentages are adjusted according to the measured oxygen percentages in your cylinders
- the oxygen partial pressure limits are set correctly

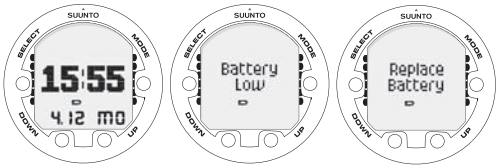
For more information on the NITROX mode, refer to *Section 6.2. Diving in NITROX mode (DIVEnitrox)*.

The dive computer is now ready for diving.

5.9.3. Battery power indication

Temperature or internal oxidation of the battery affect the battery voltage. If the instrument is stored for a long period, or used in cold temperatures, the low battery warning may be displayed even though the battery has enough capacity. In these cases, re-enter DIVE mode to receive the battery power indication.

After the battery check, the Low Battery Warning is indicated by the battery symbol.



If the battery symbol is displayed in the Surface mode, or if the display is faded or weak, the battery may be too low to operate the dive computer, and battery replacement is recommended.

NOTE *For safety reasons, the backlight cannot be activated when the low battery warning is indicated by the battery symbol.*

The optional wireless pressure transmitter sends out a lowbat (LOBT) warning when its battery voltage is getting low. This is shown intermittently instead of the pressure reading. When you get this warning, the pressure transmitter's battery needs to be replaced.

5.9.4. Diving at altitude

The dive computer can be adjusted both for diving at altitude and also to increase the conservatism of the mathematical nitrogen model.

When programming the instrument for the correct altitude, you need to select the correct Altitude Adjustment settings according to *Table 5.5, Altitude Adjustment settings*. The dive computer will adjust its mathematical model according to the entered altitude setting, giving shorter no-decompression times at higher altitudes (see *Table 10.1, No-decompression time limits for various depths (m)* and *Table 10.2, No-decompression time limits for various depths (ft)* in *Section 10.2. RGBM*).

Table 5.5. Altitude Adjustment settings

Alt. adjustment value	**Altitude range**
A0	0 - 300 m / 0 - 1000 ft
A1	300 - 1500 m / 1000 - 5000 ft
A2	1500 - 3000 m / 5000 - 10 000 ft

NOTE *Section 5.8.4. Setting the personal/altitude adjustments describes how the Altitude value is set.*

WARNING *Traveling to a higher elevation can temporarily cause a change in the equilibrium of dissolved nitrogen in the body. It is recommended that you acclimatize to the new altitude by waiting at least three hours before diving.*

5.9.5. Personal adjustments

There are personal factors that can affect your susceptibility to DCI, which you can predict in advance, and input into the decompression model. Such factors vary between divers and also for the same diver from one day to another. The three-step Personal Adjustment setting is available if a more conservative dive plan is desired and, for very experienced divers, a two step adjustment for RGBM effect on repetitive dives is available

The personal factors which tend to increase the possibility of DCI include, but are not limited to:

- cold exposure - water temperature less than 20 °C/68 °F
- below average physical fitness level
- fatigue
- dehydration
- previous history of DCI
- stress
- obesity
- patent foramen ovale (PFO)
- exercise on or after dive

This feature is used to adjust the computer to be more conservative, according to personal preference, by entering the suitable Personal Adjustment setting with the help of *Table 5.6, Personal Adjustment settings*. In ideal conditions, retain the default setting, P0. If conditions are more difficult, or any of the factors which tend to increase the possibility of DCI exist, select P1, or even the most conservative P2. The dive computer then adjusts its mathematical model according to the entered Personal Adjustment setting, giving shorter no-decompression times (see *Section 10.2.2. No-decompression limits*, *Table 10.1, No-decompression time limits for various depths (m)* and *Table 10.2, No-decompression time limits for various depths (ft)*).

Table 5.6. Personal Adjustment settings

Personal adjustment value	**Condition**	**Desired tables**
P0	Ideal conditions	Default
P1	Some risk factors or conditions exist	Progressively more conservative
P2	Several risk factors or conditions exist	

The Suunto Vyper ^{AIR} also allows experienced divers who are willing to accept a greater level of risk to adjust the RGBM model. The default setting is 100%, which gives full RGBM effect. Suunto strongly advises you to use full RGBM effect. Statistically, very experienced divers have less incidents with DCI. The reason for this is unknown, but it is possible that some level of physiological and/or psychological accommodation can take place when you are very experienced as a diver. Thus, for certain divers and diving conditions, it may be desirable to set attenuated (50%) RGBM mode. See *Table 5.7, RGBM model settings*.

Table 5.7. RGBM model settings

RGBM setting	Desired Tables	Effect
100%	Standard Suunto RGBM model (Default)	Full RGBM effects
50%	Attenuated RGBM model	Smaller RGBM effects, higher risk!

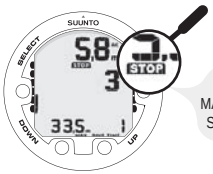
5.10. Safety Stops

Safety Stops are widely considered good diving practice for recreational diving, and are an integral part of most dive tables. The reasons for performing a Safety Stop include: reducing sub-clinical DCI, microbubble reduction, ascent control, and orientation before surfacing.

The Suunto Vyper ^{AIR} displays two different types of Safety Stops: Recommended Safety Stop and Mandatory Safety Stop.

5.10.1. Recommended Safety Stops

With every dive over 10 meters, there is a three minute countdown for the Recommended Safety Stop, to be taken in the 6 - 3 m/10 ft - 20 ft range. This is shown with the STOP sign and a three-minute countdown in the center window instead of the no-decompression time.



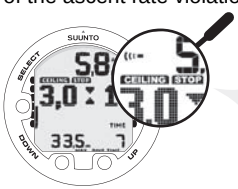
WHEN STOP IS DISPLAYED, MAKE A RECOMMENDED SAFETY STOP FOR 3 MINUTES.

NOTE *The Recommended Safety Stop, as the name implies, is recommended. If it is ignored, there is no penalty applied to the following surface intervals and dives.*

5.10.2. Mandatory Safety Stops

When the ascent rate exceeds 10 m/33 ft per minute continuously for more than 5 seconds, the microbubble build-up is predicted to be more than is allowed for in the decompression model. The Suunto RGBM calculation model responds to this by adding a Mandatory Safety Stop to the dive. The time of this Mandatory Safety Stop depends on the severity of the ascent rate excess.

The STOP sign appears in the display and when you reach the depth zone between 6 m and 3 m/20 ft and 10 ft, the CEILING label, ceiling depth, and the calculated Safety Stop time also appear in the display. You should wait until the Mandatory Safety Stop warning disappears. The total length of the Mandatory Safety Stop time depends on the seriousness of the ascent rate violation.



WHEN CEILING AND STOP ARE DISPLAYED, MAKE A ONE MINUTE MANDATORY SAFETY STOP IN THE DEPTH ZONE BETWEEN 6 M AND 3 M.

You must not ascend shallower than 3 m/10 ft with the Mandatory Safety Stop warning on. If you ascend above the Mandatory Safety Stop ceiling, a downward pointing arrow will appear and a continuous beeping starts. You should immediately descend to, or below, the Mandatory Safety Stop ceiling depth. If you correct this situation at any time during the dive, there are no effects on the decompression calculations for future dives.

WHEN CEILING AND STOP ARE DISPLAYED, IMMEDIATELY (WITHIN 3 MINUTES) DESCEND TO OR BELOW CEILING.

If you continue to violate the Mandatory Safety Stop, the tissue calculation model is affected and the dive computer shortens the available no-decompression time for your next dive. In this situation, it is recommended that you prolong your surface interval time before your next dive.

5.11. Deep stops

Deep Stops are safety stops that occur deeper than traditional stops, with the purpose of minimizing microbubble formation and excitation.

The Suunto RGBM model calculates deep stops iteratively, placing the first stop about halfway between the maximum depth and the ceiling depth. After the first Deep Stop is completed, another Deep Stop will be prompted halfway to the ceiling, and so on until the ceiling depth is reached.

The Deep Stop length can be set to 1 or 2 minutes.

6. DIVING

This section contains instructions on how to operate the dive computer and interpret its displays. You'll find that this dive computer is easy to use and read. Each display shows only the data relevant to that specific diving mode.

6.1. Diving in AIR mode (DIVEair)

In this section, we look at how to make the most of the dive computer when diving with standard air. To activate DIVEair mode, please see *Section 5.9.1. Accessing DIVE mode*.

DIVE HAS JUST BEGUN AN D AVAILABLE NO-DE COMPRESSION TIME IS OVER 99 MINUTES SO NO VALUE IS DISP LAYED.

NOTE

The dive computer will remain in the Surface mode at depths less than 1.2 m/4 ft. At depths greater than 1.2 m/4 ft the instrument will go into the DIVE mode automatically. However, it is recommended that you activate the Surface mode manually before entering the water in order to perform the necessary dive pre-checks.

6.1.1. Basic dive data

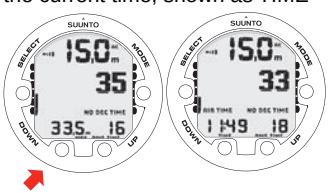
During a No-decompression dive, the following information is displayed:

- your present depth in meters/feet
- the available no-decompression time in minutes as NO DEC TIME
- the ascent rate presented as a bar graph on the right side
- the Diver Attention Symbol if surface interval should be prolonged (see *Table 7.1, Alarms*)
- the Deep Stop depth, if activated

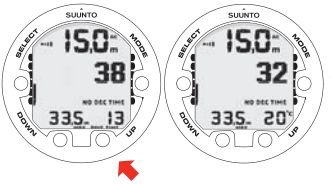
DIVE DISPLAY - PRESENT DEPTH IS 15 M, NO-DECOMPRESSION STOP TIME LIMIT IS 38 MIN. ELAPSED DIVE TIME IS 13 MIN.

Alternative displays, by pressing the UP/DOWN buttons, show:

- the elapsed dive time in minutes, shown as DIVE TIME
- the water temperature in °C/°F
- the maximum depth during this dive in meters/feet, indicated as MAX
- the current time, shown as TIME



DOWN BUTTON TOGGLES BETWEEN MAXIMUM DEPTH, CURRENT TIME AND TANK PRESSURE.



UP BUTTON TOGGLES BETWEEN DIVE TIME AND WATER TEMPERATURE.

In addition, with the optional wireless transmission enabled:

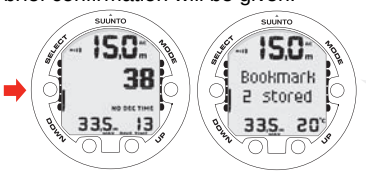
- the Remaining Air-time in the left center window indicated as AIR TIME
- the cylinder pressure in bar (or psi) displayed in the lower left corner
- the cylinder pressure graphically displayed on the left side

6.1.2. Bookmark

It is possible to record bookmarks in the profile memory during a dive. These bookmarks are displayed when scrolling the profile memory on the display. The bookmarks will also be shown as annotations in the downloadable Suunto Dive Manager PC software.

The bookmark logs the depth, time, and water temperature, as well as compass heading (if the compass has been enabled) and tank pressure when available.

To make a bookmark in the profile memory during a dive, press the SELECT button. A brief confirmation will be given.



A BOOKMARK IS PLACED IN THE PROFILE MEMORY DURING A DIVE BY PRESSING THE SELECT BUTTON.

6.1.3. Tank pressure data

The pressure of your scuba cylinder in bars (or psi) is shown digitally in the lower left corner of the alternative display. Whenever you start a dive, the remaining air time calculation begins. After 30 - 60 seconds (sometimes more, depending on your air consumption), the first estimation of remaining air time will be shown in the left center window of the display. The calculation is always based on the actual pressure drop in your cylinder and will automatically adapt to your cylinder size and current air consumption.

The change in your air consumption will be based on constant one second interval pressure measurements over 30 - 60 second periods. An increase in air consumption will influence the remaining air time rapidly, while a drop in air consumption will increase the air time slowly. In this way, an over optimistic air time estimation, caused by a temporary drop in air consumption, is avoided.

The remaining air time calculation includes a 35 bar/500 psi safety reserve. This means that when the instrument shows the air time to be zero, there is still about 35 bar/500 psi of pressure left in your cylinder, depending on your air consumption rate. With a high consumption rate, the limit will be closer to 50 bar/725 psi and with a low rate closer to 35 bar/500 psi.

NOTE *Filling your BC affects the air time calculation due to the temporary increase in air consumption.*

NOTE *A change of temperature will affect the cylinder pressure and consequently the air time calculation.*

Low Air Pressure Warnings

The dive computer will warn you with three audible double beeps and a blinking pressure display when the cylinder pressure reaches 50 bar/725 psi.

Three double beeps are also heard when the cylinder pressure goes down to the user-selected alarm pressure and when the remaining air time reaches zero.

6.1.4. Ascent rate indicator

The ascent rate is shown graphically along the right hand side. When the maximum allowed ascent rate is exceeded, the lower segments start to blink with the top segment staying solid, indicating that the maximum ascent rate has been exceeded continuously or that the current ascent rate is significantly above the allowed rate.

NORMAL ASCENT RATE.

ACTIVATED BACKLIGHT, ALARM AND A BLINKING ASCENT RATE BAR GRAPH INDICATE YOU ARE ASCENDING FASTER THAN 10 M/MIN. YOU ARE ADVISED TO MAKE A MANDATORY SAFETY STOP WHEN YOU REACH A DEPTH OF 6 M.

WARNING *DO NOT EXCEED THE MAXIMUM ASCENT RATE! Rapid ascents increase the risk of injury. You should always make the Mandatory and Recommended Safety Stops after you have exceeded the maximum recommended ascent rate. If this Mandatory Safety Stop is not completed, the decompression model will penalize your next dive(s). Continuous ascent rate violations will result in Mandatory Safety Stops. When Recommended Deep Stop is enabled, the length is indicated in seconds.*

6.1.5. Safety Stops

A 3 minute Recommended Safety Stop is prompted after every dive to over 10m.

6.1.6. Decompression dives

When your NO DEC TIME becomes zero, your dive becomes a decompression dive so you must perform one or more decompression stops on your way to the surface. The NO DEC TIME on your display will be replaced by an ASC TIME, and a CEILING notation will appear. An upward pointing arrow will also prompt you to start your ascent.

If you exceed the no-decompression limits on a dive, the dive computer will provide the decompression information required for ascent. After this, the instrument will continue to provide subsequent interval and repetitive dive information.

Rather than requiring you to make stops at fixed depths, the dive computer lets you decompress within a range of depths (continuous decompression).

The ascent time (ASC TIME) is the minimum amount of time needed to reach the surface in a decompression dive. It includes:

- the time needed to ascend to the ceiling at an ascent rate of 10 m/33 ft per minute. The ceiling is the shallowest depth to which you should ascend

- the time needed at the ceiling
- the time needed at the Mandatory Safety Stop (if any)
- the time needed to reach the surface after the mandatory decompression dives have been completed

NOTE *In addition, there may also be Mandatory Safety Stops which are not displayed in ASC TIME.*

WARNING *YOUR ACTUAL ASCENT TIME MAY BE LONGER THAN DISPLAYED BY THE INSTRUMENT! The ascent time will increase if you:*

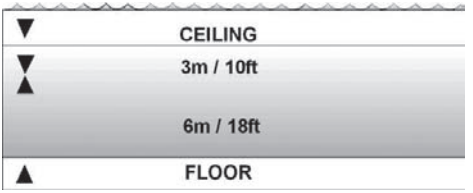
- *remain at depth*
- *ascend slower than 10 m/33 ft per minute*
- *make your decompression stop deeper than at the ceiling*

These factors will also increase the amount of air required to reach the surface.

Ceiling, ceiling zone, floor and decompression range

When in decompression, it is important that you understand the meaning of ceiling, floor, and decompression range.

- The ceiling is the shallowest depth to which you should ascend when in decompression. At this depth, or below, you must perform all stops
- The ceiling zone is the optimum decompression stop zone. It is the zone between the minimum ceiling and 1.2 m/4 ft below the minimum ceiling
- The floor is the deepest depth at which the decompression stop time will not increase. Decompression will start when you pass this depth during your ascent
- The decompression range is the depth range between the ceiling and floor. Within this range, decompression takes place. However, it is important to remember that the decompression will be very slow at, or close to, the floor



The depth of the ceiling and floor will depend on your dive profile. The ceiling depth will be fairly shallow when you enter the decompression mode, but if you remain at depth, it will move downward and the ascent time will increase. Likewise, the floor and ceiling may change upwards while you are decompressing.

When conditions are rough, it may be difficult to maintain a constant depth near the surface. In such cases, it is more manageable to maintain an additional distance below the ceiling, to make sure that the waves do not lift you above the ceiling. Suunto recommends that decompression takes place deeper than 4 m/13 ft, even if the indicated ceiling is shallower.

NOTE *It will take more time and more air to decompress below the ceiling than at the ceiling.*

WARNING *NEVER ASCEND ABOVE THE CEILING! You must not ascend above the ceiling during your decompression. In order to avoid doing so by accident, you should stay somewhat below the ceiling.*

Display below the floor

The blinking ASC TIME and an upward pointing arrow indicate that you are below the floor. You should start your ascent immediately. The ceiling depth is shown on the left side, and the minimum total ascent time on the right side, of the center window. Below is an example of a decompression dive without Deep Stops, below the floor.

UPWARD POINTING ARROW, BLINKING ASC TIME AND AN ALARM TELL YOU TO ASCEND. MINIMUM TOTAL ASCENT TIME INCLUDING MANDATORY SAFETY STOP IS 15 MINUTES. CEILING IS AT 3 M.

Display above the floor

When you ascend above the floor, the ASC TIME display stops blinking and the upward pointing arrow disappears. Below is an example of a decompression dive above the floor.

UPWARD POINTING ARROW HAS DISAPPEARED AND ASC TIME LABEL HAS STOPPED BLINKING, MEANING YOU ARE IN THE DECOMPRESSION RANGE.

Decompression will now begin, but is very slow. You should therefore continue your ascent.

Display at the ceiling zone

When you reach the ceiling zone, the display will show you two arrows pointing at each other (the “hour glass” icon). Below is an example of a decompression dive at the ceiling zone.

TWO ARROWS POINT AT EACH OTHER “HOUR GLASS”. YOU ARE IN THE OPTIMUM CEILING ZONE AT 3 M. AND YOUR MINIMUM ASCENT TIME IS 15 MINUTES.

During the decompression stop, ASC TIME will count down towards zero. When the ceiling moves upwards, you can ascend to the new ceiling. You may surface only after the ASC TIME and CEILING labels have disappeared, which means that the decompression stop and any Mandatory Safety Stop have been completed. You are advised, however, to stay until the STOP sign has also disappeared. This indicates that the three minute Recommended Safety Stop has also been completed.

Display above the ceiling

If you ascend above the ceiling during a decompression stop, a downward pointing arrow will appear and a continuous beeping starts.

DECOMPRESSION DIVE, ABOVE CEILING. NOTE DOWNWARD POINTING ARROW, ER WARNING AND ALARM. YOU SHOULD IMMEDIATLY (WITHIN 3 MINUTES) DESCEND TO OR BELOW CEILING.

In addition, an Error warning (Er) reminds you that you have only three minutes to correct the situation. You must immediately descend to, or below, the ceiling.

If you continue to violate the decompression, the dive computer will go into a permanent Error Mode. In this mode, the instrument can only be used as a depth gauge and timer. You must not dive again for at least 48 hours. (See *Section 5.6. Error conditions*).

6.2. Diving in NITROX mode (DIVEnitrox)

NITROX mode (DIVEnitrox) is the second dive mode available in Suunto Vyper AIR and is used when using oxygen-enriched gas mixtures.

6.2.1. Before diving in NITROX mode

If set to the NITROX mode, the correct oxygen percentage of the gas in your cylinder must always be entered into the computer to ensure correct nitrogen and oxygen calculations. The dive computer adjusts its mathematical nitrogen and oxygen calculation models accordingly. The dive computer will not accept fractional percentage values of oxygen concentration. Do not round up fractional percentages. For example, 31.8% oxygen should be entered as 31%. Rounding up will cause nitrogen percentages to be understated and will affect decompression calculations. If you want to adjust the computer to provide more conservative calculations, use the personal adjustment feature to affect decompression calculations, or reduce the PO_2 setting to affect oxygen exposure according to the entered O_2% and PO_2 values. Calculations based on nitrox use result in longer no-decompression times and shallower maximum depths than diving with air.

As a safety precaution, the oxygen calculations in the computer are made with an oxygen percentage of 1% + set O_2% .

When the dive computer is set in NITROX mode, the Dive Planning mode calculates using the O_2% and PO_2 values that are currently in the computer.

To set the nitrox mixes, refer to *Section 5.8.3. Setting the nitrox values*.

Default nitrox settings

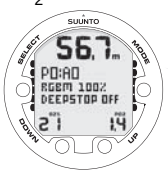
In NITROX mode, the Suunto Vyper AIR allows you to set 1 or 2 nitrox mixes containing 21-99% oxygen.

In the NITROX mode, the default setting for MIX1 is standard air (21% O_2). It remains in this setting until the O_2% is adjusted to any other percentage of oxygen (22% - 99%). The default setting for maximum oxygen partial pressure is 1.4 bar, however you are able to set it in the range of 0.5 - 1.6 bar.

MIX2 is set to OFF by default. To set MIX2 , refer to *Section 6.2.4. Gas change and multiple breathing gas mixes*. Oxygen percentages and maximum oxygen partial pressures for MIX2 are stored permanently.

6.2.2. Oxygen displays

When NITROX mode is activated, the display will show the information in the figure below. In NITROX mode, the maximum operational depth is calculated based on set O_2% and PO_2 values.

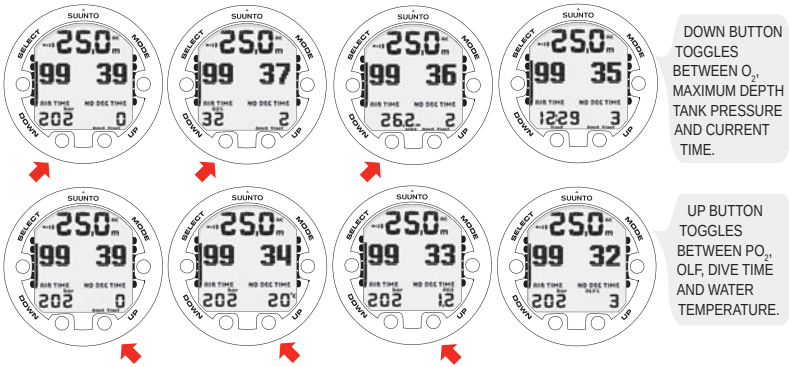


NITROX DIVE MODE ACTIVATION.
MAXIMUM OPERATIONAL DEPTH BASED ON SET O_2% (21%) AND PO_2 (1.4 BAR) IS 56.7 M.

If set to NITROX mode, the Suunto Vyper AIR will additionally show on the alternative display:

- the oxygen percentage, labeled O_2%
- the set oxygen partial pressure limit, labeled PO_2
- the current oxygen toxicity exposure, labeled OLF

- maximum depth
- current time
- water temperature
- dive time
- tank pressure


DOWN BUTTON TOGGLES BETWEEN O_2, MAXIMUM DEPTH TANK PRESSURE AND CURRENT TIME.
UP BUTTON TOGGLES BETWEEN PO_2, OLF, DIVE TIME AND WATER TEMPERATURE.

6.2.3. Oxygen limit fraction (OLF)

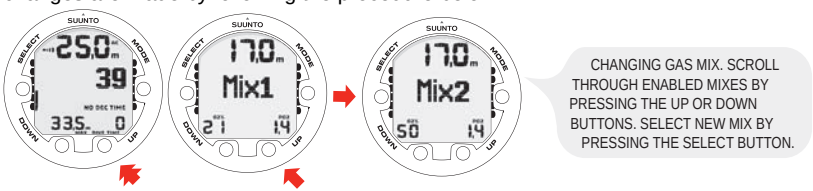
If set to NITROX mode, in addition to tracking the diver's exposure to nitrogen, the instrument tracks the exposure to oxygen. These calculations are treated as entirely separate functions.

The dive computer calculates separately for Central Nervous System oxygen toxicity (CNS) and Pulmonary Oxygen toxicity, the latter measured by the addition of Oxygen Toxicity Units (OTU). Both fractions are scaled so that the maximum tolerated exposure for each is expressed as 100%.

The Oxygen Limit Fraction (OLF) displays only the value of the higher of the two calculations. The oxygen toxicity calculations are based on the factors listed in *Section 10.3. Oxygen exposure* .

6.2.4. Gas change and multiple breathing gas mixes

The Suunto Vyper ^{AIR} allows gas changes to enabled gas mixes during the dive. Gas changes are made by following the procedure below:


CHANGING GAS MIX. SCROLL THROUGH ENABLED MIXES BY PRESSING THE UP OR DOWN BUTTONS. SELECT NEW MIX BY PRESSING THE SELECT BUTTON.

NOTE

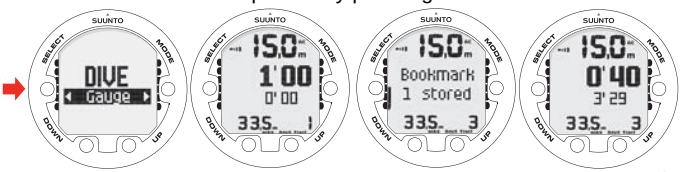
Mix number, O_2% and PO_2 for the mixes are shown when scrolling. If the set PO_2 limit is exceeded , it will be shown with the PO_2 value blinking. The dive computer does not allow you to change to a gas whose set PO_2 is exceeded. In such a case, the mix is shown but cannot be selected.

NOTE *If no button is pressed in 15 seconds, the dive computer will go back to the dive display without changing the gas mix. Upon ascent, the computer prompts you to change gas when the PO_2 level you have set for the next mix allows a gas change. The prompt is an audible 3 beeps and the current O_2 mix starts to blink.*

6.3. Diving in GAUGE mode (DIVEgauge)

If set to GAUGE mode, the dive computer can be used as a bottom timer.

In the GAUGE mode, the total dive time is always displayed in minutes in the lower right corner. In addition, a Dive Timer in the center window displays time in minutes and seconds. The center window Dive Timer is activated at the start of the dive and it can be reset during the dive and used as a stopwatch by pressing the SELECT button.



BY PRESSING THE SELECT BUTTON DURING A DIVE, A BOOKMARK IS WRITTEN IN THE PROFILE MEMORY, THE DIVE TIMER IS RESET, AND THE PREVIOUSLY-TIMED INTERVAL IS DISPLAYED BELOW.

Tank pressure (if enabled) is also displayed during the dive.

NOTE *The GAUGE mode does not provide decompression information.*

NOTE *There is no ascent rate monitoring in the GAUGE mode.*

NOTE *If you dive with the GAUGE mode, it is not possible to change between the modes before the no fly time has counted down.*

7. AFTER DIVING

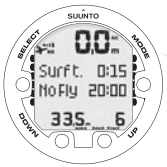
Once back at the surface, Suunto Vyper AIR continues to provide post-dive safety information and alarms. Calculations to enable repetitive dive planning also help to maximize diver safety.

Table 7.1. Alarms

Symbol on display	Indication
⚠	Diver Attention Symbol - Extend Surface Interval
Er	Violated Decompression Ceiling
NO	Do Not Fly Symbol

7.1. Surface interval

An ascent to any depth shallower than 1.2 m/4 ft will cause the DIVING display to be replaced by the SURFACE display:



IT IS 15 MINUTES SINCE YOU SURFACED FROM A 6-MINUTE DIVE. THE PRESENT DEPTH IS 0.0 M. THE AIRPLANE SYMBOL AND NO-FLY VALUE INDICATE THAT YOU SHOULD NOT FLY FOR 20 HOURS.

Or, in the alternative displays, the following information will be shown:

- maximum depth of last dive in meters/feet
- dive time of last dive in minutes, shown as DIVE TIME
- the current time, shown as TIME
- the current temperature in °C/°F
- tank pressure, if activated

If set to NITROX mode, the following information will also be shown:

- the oxygen percentage labeled O_2%
- the oxygen partial pressure labeled PO_2
- the current oxygen toxicity exposure labeled OLF

7.2. Dive numbering

Several repetitive dives are considered to belong to the same repetitive dive series when the dive computer has not counted the no-fly time to zero. Within each series, the dives are given individual numbers. The first dive of the series will be numbered as DIVE 1, the second as DIVE 2, the third as DIVE 3, etc.

If you start a new dive with less than 5 minutes of surface interval time, the dive computer interprets this as a continuation of the previous dive and the dives are considered to be the same. The diving display will return, the dive number will remain unchanged, and the dive time will begin where it left off. After 5 minutes on the surface, subsequent dives are, by definition, repetitive. The dive counter displayed in the Planning mode will increment to the next number if another dive is made.

7.3. Repetitive dive planning

The Suunto Vyper AIR includes a dive planner that allows you to review the no-decompression limits on a subsequent dive, taking the residual nitrogen loading of previous dives into consideration. The Dive Planning mode is explained in *Section 7.5.1. Dive Planning mode (PLANnodec)*.

7.4. Flying after diving

In DIVE mode, the no-fly time is shown in the center window next to the airplane image. In TIME mode, the airplane image is shown in the top left corner. Flying or traveling to a higher altitude should be avoided at any time when the computer is counting down the no-fly time.

The no-fly time is always at least 12 hours, or equivalent to the so-called desaturation time (if longer than 12 hours). For desaturation times lower than 70 minutes, no no-fly time is given.

In the Permanent Error mode and GAUGE mode, the no-fly time is 48 hours.

The Divers Alert Network (DAN) recommends the following on no-fly times:

- A minimum surface interval of 12 hours would be required in order to be reasonably assured a diver will remain symptom free upon ascent to altitude in a commercial jetliner (altitude up to 2,400 m/8,000 ft)
- Divers who plan to make daily, multiple dives for several days, or make dives that require decompression stops, should take special precautions and wait for an extended interval beyond 12 hours before a flight. Further, the Undersea and Hyperbaric Medical Society (UHMS) suggests divers using standard air cylinders and exhibiting no symptoms of decompression illness wait 24 hours after their last dive to fly in an aircraft with cabin pressure up to 2,400 m/8,000 ft. The only two exceptions to this recommendation are:
  - If a diver has less than 2 hours total accumulated dive time in the last 48 hours, a 12 hour surface interval before flying is recommended
  - Following any dive that required a decompression stop, flying should be delayed for at least 24 hours, and if possible, for 48 hours
- Suunto recommends that flying is avoided until all the DAN and UHMS guidelines, as well as the dive computer's no-fly conditions, are satisfied

7.5. PLAN mode

The PLAN mode includes a dive planner (PLANnodec) and simulation mode (PLANsimulator).

7.5.1. Dive Planning mode (PLANnodec)

The Dive Planning mode displays no-decompression times for a new dive, taking into account the effects of previous dives.

When entering the PLANnodec mode, the display first briefly shows the remaining desaturation time before going into plan mode.

By pressing the UP/DOWN buttons, you can scroll the no-decompression limits in 3 m/10 ft increments ending at 45 m/150 ft. No-decompression limits longer than 99min are displayed as "—".

WHEN ENTERING THE PLANNODEC MODE THE DISPLAY FIRST BRIEFLY SHOWS TISSUE LOADING, THE REMAINING DESATURATION TIME BEFORE GOING INTO PLAN MODE. USE UP AND DOWN BUTTONS TO SCROLL DIFFERENT NO-DECOMPRESSION LIMITS. NO-DECOMPRESSION LIMITS LONGER THAN 99 MINUTES ARE DISPLAYED AS "–".

The Planning mode takes into account the following information from previous dives:

- any calculated residual nitrogen
- all dive history for the past four days

The no-decompression times given for different depths will therefore be shorter than before your first "fresh" dive.

You can exit the planning mode by pressing the MODE button.

NOTE *The Planning mode is disabled in GAUGE mode and in Error mode (see Section 5.6. Error conditions). The planning mode calculates no-decompression times for MIX1 only. If an additional mix is enabled in the NITROX mode, it does not affect the calculations in PLANNoDec mode.*

Higher Altitude and conservative Personal Adjustment settings will shorten the no-decompression time limits. These limits at different Altitude and Personal Adjustment setting selections are explained in *Section 5.9.4. Diving at altitude* and in *Section 5.9.5. Personal adjustments*

Dive numbering shown during dive planning

Dives belong to the same repetitive dive series if the instrument was still counting down the no-fly time at the beginning of the dive.

The surface interval must be at least 5 minutes for a dive to be considered a repetitive dive. Otherwise, it is considered a continuation of the same dive. The dive number will not change and the dive time will continue where it left off. (See also *Section 7.2. Dive numbering*).

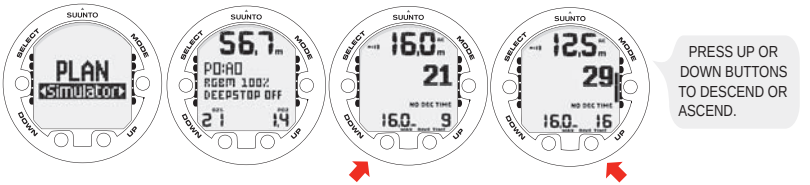
7.5.2. Simulation Mode (PLANsimulator)

The Simulation mode can be used to become familiar with the features and displays of the device before diving, to plan dives in advance, for demonstrational or educational purposes, or just for fun.

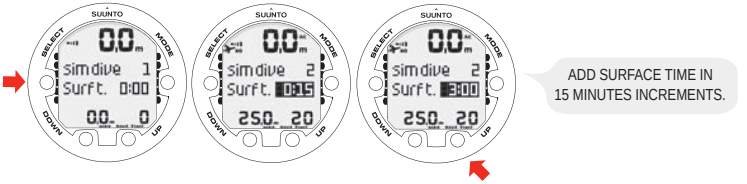
In the Simulation mode, time runs faster than real time, so after 15 seconds using a simulator, the dive time will be one minute.

Dive Simulator

The Dive Simulator is an excellent tool for familiarizing yourself with your dive computer and for planning your dives. The Dive Simulator allows you to "perform" dive profiles of your choice and to see what the display would look like during an actual dive - including basic dive information as well as audible and visual warnings.

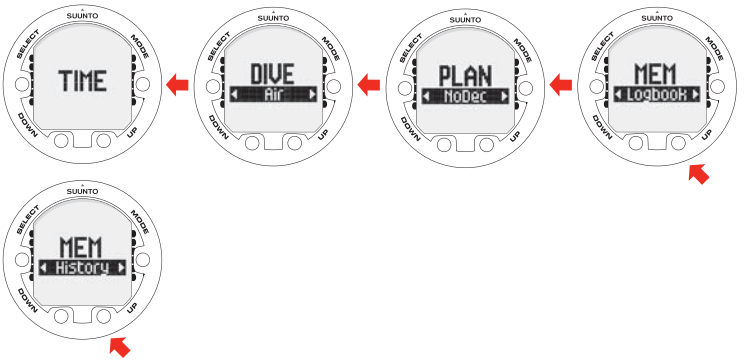


The mode can also be used to add the desired surface intervals for dive simulations. Add the desired surface interval increments to the present surface interval by pressing the UP and DOWN buttons.



7.6. MEMORY mode

The memory options include a dive logbook (MEMLogbook) and dive history (MEMHistory).

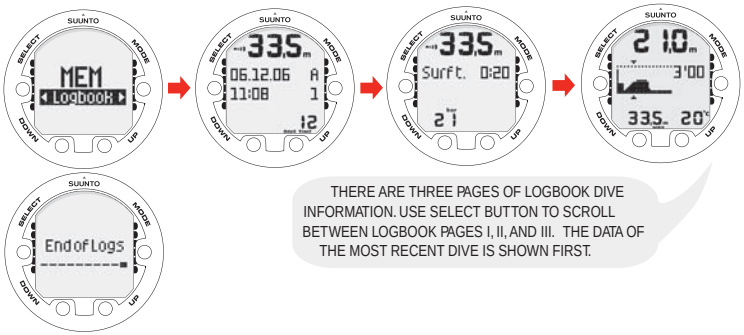


The dive time and date are registered in the Logbook memory. Always check before diving that the time and date are correctly set, especially after traveling between different time zones.

7.6.1. Dive logbook (MEMLogbook)

The Suunto Vyper AIR has a very sophisticated, high capacity Logbook and Profile Memory. The data is recorded in the profile memory based on the selected sample rate.

The END OF LOGS text is displayed between the oldest and most recent dive. The following information will be shown on three pages:



Page I, main display

- maximum depth
- date of dive
- type of dive (AIR, NITROX, GAUGE)
- dive start time
- dive number
- oxygen percentage for Mix1
- total dive time (in minutes in all modes)

Page II

- maximum depth
- warnings
- consumed tank pressure

Page III

- graphical dive profile
- water temperature
- tank pressure (if enabled)

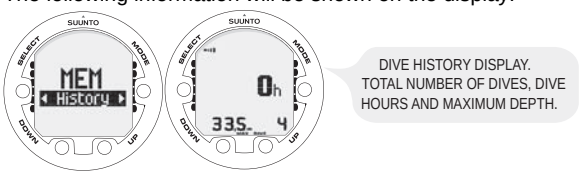
NOTE *The memory will retain approximately the last 42 hours of dive time. After that, when new dives are added, the oldest dives are deleted. The contents of the memory will remain when the battery is changed (providing that the battery has been replaced according to the instructions).*

NOTE *Several repetitive dives are considered to belong to the same repetitive dive series if the no-fly time has not ended. See Section 7.2. Dive numbering for further information.*

7.6.2. Dive history (MEMHistory)

The dive history is a summary of all the dives recorded by the dive computer.

The following information will be shown on the display:



The Dive History Memory can hold a maximum of 999 dives and 999 diving hours. When these maximum values are reached, the counters will start again from zero.

NOTE *The maximum depth can be reset to 0.0 m/0 ft using the PC Interface unit and the downloadable Suunto Dive Manager software.*

7.7. Suunto Dive Manager (SDM)

Suunto Dive Manager (SDM) is optional PC software that greatly enhances the functionality of your Suunto Vyper AIR.

With the SDM software, you can download dive data from your dive computer to your PC. You can then view and organize all the data recorded with your Suunto Vyper AIR. You can also plan dives, print copies of your dive profiles and upload your dive logs to share with your friends at SuuntoSports.com.

You can always download the latest version of Suunto Dive Manager from www.suunto.com. Please check for updates regularly as new features are constantly being developed.

The following data is transferred to your PC:

- depth profile of the dive
- dive time
- preceding surface interval time
- dive number
- dive start time (year, month, day and time)
- dive computer settings
- oxygen percentage settings and maximum OLF (in NITROX mode)
- tissue calculation data
- real-time water temperature
- additional dive information (e.g. SLOW and Mandatory Safety Stop violations, Diver Attention Symbol, Bookmark, Surfaced Mark, Decompression Stop Mark, Ceiling Error Mark, Gas Change)
- dive computer serial number
- personal information (30 characters)
- tank pressure consumption (with optional wireless transmitter in use)

Using SDM, you are able to enter setup options such as:

- input a personal, 30-character field into the Suunto Vyper AIR
- reset the Dive History's maximum depth to zero

It is also possible to manually add comments, multimedia and other personal information to the PC-based dive data files.

7.8. www.suuntosports.com and Suunto Diving World at www.suunto.com/diving

When you have dived and transferred your dive data to your Suunto Dive Manager, you can share your best experiences with other diving enthusiasts at SuuntoSports.com. It's a free and open Internet community where you can compare your underwater experiences with other Suunto users and learn from each other.

SuuntoSports.com includes three sections.

In My Suunto you can register your dive computer and manage your membership profile. The section also contains a personal event calendar.

The Communities section is meeting a place for smaller groups of SuuntoSports.com members. Here you can create and manage your own communities and search for others. All communities have a home page that lists the latest group activities. Community members can also use group-specific bulletin boards and calendars, create their own link lists and group activities. All registered SuuntoSports.com users automatically become members of the 'World of Suunto Sports' community.

The Sport forums include sport-specific news, bulletin boards, event calendars, ranking lists and discussions. You can also exchange experiences and read travel reports written by other members.

To learn more about SuuntoSports.com's functions and activities, visit the site, try them and, if necessary, use the site Help. The Help is available on the right side of the bar that divides the screen.

8. CARE AND MAINTENANCE OF MY SUUNTO DIVING COMPUTER

The SUUNTO dive computer is a sophisticated precision instrument. Although it is designed to withstand the rigors of scuba diving, you must treat it with the same proper care and caution as any other precision instrument.

- WATER CONTACTS AND PUSH BUTTONS

  Contamination or dirt on the water contacts/connector or push buttons may prevent the automatic activation of the Dive Mode and cause problems during the data transfer. Therefore, it is important that the water contacts and push buttons are kept clean. If the water contacts are active (AC text remains on display) or the Dive Mode activates on its own, the reason for this is probably contamination or invisible marine growth, which may create an electric current between the contacts. It is important that the dive computer is carefully washed in fresh water after the day's diving is completed. The contacts can be cleaned with fresh water and, if necessary, a mild detergent and a soft brush. Sometimes it might be necessary to remove the instrument from the protective boot for cleaning.
- CARE OF YOUR DIVE COMPUTER
  - NEVER try to open the case of the dive computer.
  - Have your dive computer serviced every two years or after 200 dives (whichever comes first) by an authorized dealer or distributor. This service will include a general operational check, replacement of the battery, and water resistance check. The service requires special tools and training. Therefore, it is advisable to contact an authorized SUUNTO dealer or distributor for the biennial service. Do not attempt to do any servicing that you are not sure of.
  - Should moisture appear inside the case or battery compartment, immediately have the instrument checked by your SUUNTO dealer or distributor.
  - Should you detect scratches, cracks or other such flaws on the display that may impair its durability, immediately have it replaced by your SUUNTO dealer or distributor.
  - Wash and rinse the unit in fresh water after every use.
  - Protect the unit from shock, extreme heat, direct sunlight, and chemical attack. The dive computer cannot withstand the impact of heavy objects like scuba cylinders, nor chemicals like gasoline, cleaning solvents, aerosol sprays, adhesive agents, paint, acetone, alcohol, etc. Chemical reactions with such agents will damage the seals, case and finish.
  - Store your dive computer in a dry place when you are not using it.
  - The dive computer will display a battery symbol as a warning when the power gets too low. When this happens, the instrument should not be used until the battery has been replaced.
  - Do not fasten the strap of your dive computer too tightly. You should be able to insert your finger between the strap and your wrist. Shorten the strap by cutting it if you do not expect to need the extra length.
- MAINTENANCE

  The instrument should be soaked, thoroughly rinsed with fresh water, then dried with a soft towel after each dive. Make sure that all salt crystals and sand particles have been flushed out. Check the display and the transparent battery compartment cover for possible moisture or water. DO NOT use the dive computer if you detect any moisture or water inside. In order to limit corrosion damage, remove the battery and moisture from the battery compartment. Contact an authorized Suunto dealer for battery replacement or other service.

  CAUTION!

  - Do not use compressed air to blow water off the unit.
  - Do not use solvents or other cleaning fluids that might cause damage.
  - Do not test or use the dive computer in pressurized air.
- WATER RESISTANCE INSPECTION

The water resistance of the unit must be checked after replacing the battery or after other service operations. The check requires special equipment and training. You must frequently check the transparent battery compartment cover and the display for any sign of leaks. If you find moisture inside your dive computer, there is a leak. A leak must be corrected without delay as moisture will seriously damage the unit, even beyond repair. SUUNTO does not take any responsibility for damage caused by moisture in the dive computer unless the instructions of this manual are carefully followed. In the event of a leak, immediately take the dive computer to an authorized SUUNTO dealer or distributor.

FAQs

WHAT CAN I DO TO MY SUUNTO DIVING COMPUTER MYSELF?

NOTE *It is advisable to contact an authorized Suunto service, distributor or retailer for any repairs. Batteries and straps can be replaced by the user when the change is made in a proper manner to avoid any leakage of water into the battery compartment or computer. Original battery replacement and strap kits must be used.*

Batteries can be changed by the user in all diving computers except Stinger, D4, D6 and D9.

Instructions for changing batteries and straps can be found in the user manuals or at www.suunto.com and the user videos there.

WHAT ARE ORIGINAL SUUNTO ACCESSORIES?

Original Suunto accessories are only distributed through Suunto`s worldwide network of authorized Suunto distributors and retailers.

Original Suunto accessories are tested to be compatible with Suunto products and can be used safely.

NOTE *Damage caused by non-original accessories will not be covered by warranty.*

HOW TO GET MORE INFORMATION

You can find service & warranty information in these pages by searching the FAQs.

If you do not find the answer in the FAQs, you can also send a support request. To be able to send a support request you have to register in the system. REGISTER NOW.

You can also contact our European help desk by telephone at +358 2 284 1160. The cost of the call is that of a normal call to Finland. The call center is open Mon-Fri, 24h/day. The service is provided in English all the time. Other languages - French, German, Swedish, Japanese, Spanish and Finnish – are only provided during local business hours. Call center professionals can answer customer questions regarding diving products, outdoor products and compasses.

HOW DO I KNOW IF MY SUUNTO PRODUCT IS COVERED BY WARRANTY?

You can check the proof pf purchase, which has to be 2 years or less. You can also check the serial number of your unit.

Does repairing my Suunto product extend the warranty?

As far as the national laws permit, repairing the product does not extend or otherwise affect the warranty period. However, part(s) repaired or replacement product(s) provided during the warranty period will be warranted for the remainder of the original warranty period or for three (3) months from the date of repair or replacement, whichever is longer.

9. BATTERY REPLACEMENT

NOTE *It is advisable to contact an authorized Suunto representative for battery replacement. It is imperative that the change is made in a proper manner to avoid any leakage of water into the battery compartment or computer.*

CAUTION *Defects caused by improper battery installation are not covered by the warranty.*

CAUTION *When the battery is changed, all nitrogen and oxygen uptake data is lost. Therefore, the no-fly time shown by the computer should have reached zero or you must wait for 48 hours, or preferably up to 100 hours, before you dive again.*

All history and profile data, as well as the altitude, personal, and alarm settings, will remain in the dive computer memory after the battery change. However, the clock time and time alarm settings are lost. In the NITROX mode, the nitrox settings also revert back to default settings (MIX1 21% O_2, 1.4 bar PO_2, MIX2 OFF).

When working with the battery compartment, cleanliness is extremely important. Even the smallest dirt particles may cause a leakage when you dive.

9.1. Battery kit

The battery kit includes a 3.0 V coin type lithium cell battery and a lubricated O ring. When handling the battery do not make contact with both of the poles at the same time. Do not touch the surfaces of the battery with your bare fingers.

9.2. Required tools

- A flat 1.5 mm screwdriver or a special tool for spring bars (K5857).
- Soft cloth for cleaning.
- Needlenose pliers or small screwdriver for turning securing ring.

9.3. Replacing the battery

The battery and the buzzer are located in the back of the instrument in a separate compartment. To change the battery:

1. Remove the computer from the console or boot.
   Wrist model:
   - Pull off the boot. Remove it first from the front end with the longer part of the strap.
   - Disassemble the shorter part of the strap with a flat 1.5 mm screwdriver or a special tool for spring bars. The longer part of the strap may stay on but removing it may ease the work later on.

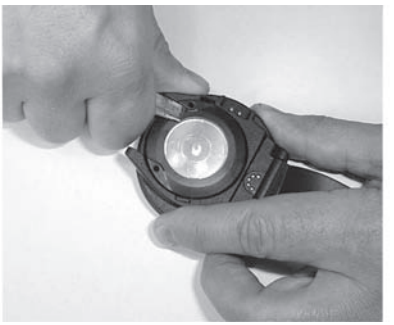
   Console model:
   - Remove the dive computer from the console according the instructions of the console.
2. Thoroughly rinse and dry the computer.
3. Open the securing ring of the battery compartment lid by pushing it down and rotating it clockwise. You may use a pointed nose pliers or a small screwdriver as an aid in the rotating. Put the pliers ends into the holes of the securing ring or the screwdriver onto the side of the right tooth on the ring and turn the ring clockwise. Be careful not to damage any of the parts.
4. Remove the ring.
5. Carefully remove the lid with the beeper attached to it. You can remove the lid by pressing with your finger on the outermost edge of the lid while simultaneously pulling with your nail at the opposite side. Don't use sharp metal objects as they might damage the O-ring or the sealing surfaces.

6. Remove the O-ring and the battery retainer.
7. Carefully remove the battery. Do not damage the electrical contacts or the sealing surface.
8. Check for any traces of flooding, particularly between the beeper and the lid, or for any other damage. In case of a leak or any other damage, bring the dive computer to an authorized SUUNTO dealer or distributor for check and repair.
9. Check the condition of the O-ring; a defective O-ring may indicate sealing or other problems. Dispose the old O-ring, even if it seems to be in good condition.
10. Check that the battery compartment, battery holder and lid are clean. Clean with soft cloth if necessary.
11. Gently insert the new battery in the battery compartment. Check the polarity of the battery: the "-" mark should point toward the bottom of the compartment and the "+" mark upwards.
12. Reinstall the battery retainer in its correct position.
13. Check that the new lubricated O-ring is in good condition. Put it in the right position on the battery compartment lid. Be very careful not to get any dirt on the o-ring or its sealing surfaces.
14. Carefully press the lid onto the battery compartment with your thumb, while making sure that the O-ring is not at any point protruding out on the edge.
15. Put your other thumb through the locking ring. Press this thumb firmly against the lid and release the other one. Make sure that the lid is pressed completely down!
16. Turn the locking ring counterclockwise with your free thumb and fingers until it snaps into its locked position.
17. The dive computer should now active its timekeeping mode and show time 18:00 [6:00 PM] and date SA 01,01. Activate the instrument. Check that
    - all display segments work.
    - the low battery warning is off.
    - the buzzer beeps and backlight works.
    - all the settings are correct. Reset if necessary.
18. Install the dive computer back into the console or boot and reassemble the strap. The instrument is now ready for use.

    Wrist model:
    - Assembling into the boot: First insert the longer strap in its hole in the front of the boot and then the dive computer into its cavity in the boot starting at the back end. Then snap also the long strap end of the instrument into the boot. Stretch the boot as needed.
    - Assemble the shorter part of the strap. Use the spring bar tool or small screwdriver to compress the spring bars. Make sure that the spring bars get fully seated so they will not come off their holes.

    Console model
    - Refit the dive computer in the console according the instructions of the console.

CAUTION *Check after the first dives for possible moisture under the transparent battery compartment lid, indicating a leak.*



9.4. Wireless transmitter battery replacement

NOTE *It is advisable to contact an authorized Suunto representative for transmitter battery replacement. It is imperative that the change is made in a proper manner to avoid any leakage of water into the transmitter.*

CAUTION *Defects caused by improper battery installation are not covered by the warranty.*

9.4.1. Transmitter battery kit

The transmitter battery kit includes a 3.0 V CR ½ AA lithium cell battery and a lubricated O-ring. When handling the battery, do not make contact with both of the poles at the same time. Do not touch the metal surfaces of the battery with your bare fingers.

9.4.2. Required tools

- A Phillips-head screwdriver
- Soft cloth for cleaning

9.4.3. Replacing the transmitter battery

To change the transmitter battery:

1. Remove the transmitter from the regulator HP port.
2. Unscrew and remove the four Phillips screws on the back of the transmitter.
3. Pull off the transmitter cover.
4. Carefully remove the o-ring. Be careful not to damage the sealing surfaces.
5. Carefully remove the battery. Do not touch the electrical contacts or the circuit board.

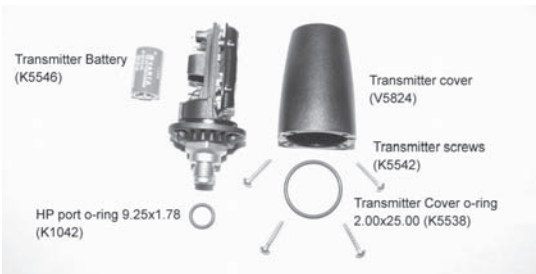
Check for any traces of leakage, or for any other damage. If there is a leak or any other damage, take the transmitter to an authorized Suunto representative or distributor for checking and repair.

6. Check the condition of the O-ring. A defective O-ring may indicate sealing or other problems. Dispose of the old O-ring, even if it seems to be in good condition
7. Check that the O-ring groove and the sealing surface of the cover are clean. Clean them with a soft cloth if necessary.
8. Gently insert the new battery into the battery compartment. Check the polarity of the battery. The "+" mark should point toward the top of the compartment and the "-" mark towards the bottom.

NOTE *It is imperative that you wait at least 30 seconds before re-installing the transmitter battery.*

When the battery is re-installed, the transmitter sends an overpressure ("---") signal on code 12 for 10 seconds, after which it goes to normal operation, and shuts down after 5 minutes.

9. Check that the new lubricated O-ring is in good condition. Put it in the right position in the O-ring groove. Be very careful not to get any dirt on the O-ring or its sealing surfaces.
10. Carefully put the transmitter cover into place. Note that the cover will only fit in one position. Match the three slots on the inside of the cover with the three ledges below the battery.
11. Screw the four screws back into place.



Wireless transmitter parts. The code stands for spare part order number.

10. TECHNICAL DATA

10.1. Technical specifications

Dimensions and weight:

- Diameter: 61.0 mm/2.4 in
- Thickness: 28 mm/1.1 in
- Weight: 68 g/2.4 oz

Transmitter:

- Max. diameter: 40 mm/1.57 in
- Length: 80 mm/3.15 in
- Weight: 118 g/4.16 oz
- Rated working pressure: 300 bar/4000 psi, maximum allowed pressure 360 bar/5,000 psi
- Display resolution: 1 bar/1 psi

Depth gauge:

- Temperature compensated pressure sensor
- Salt water calibrated, in fresh water the readings are about 3% smaller (calibrated in compliance with EN 13319)
- Maximum depth of operation: 100 m/328 ft (complying with EN 13319)
- Accuracy: ± 1% of full scale or better from 0 to 80 m/262 ft at 20°C/68°F (complying with EN 13319)
- Depth display range: 0 to 150 m/492 ft
- Resolution: 0.1 m from 0 to 100 m/1 ft from 0 to 328 ft

Temperature display:

- Resolution: 1°C/1°F
- Display range: -20 to +50°C/-9 to +122°F
- Accuracy: ± 2°C/± 3.6°F within 20 minutes of temperature change

Calendar clock:

- Accuracy: ± 25 s/month (at 20°C/68°F)
- 12/24 h display

Displays only in NITROX mode:

- Oxygen %: 21 - 99
- Oxygen partial pressure display: 0.2 - 3.0 bar.
- Oxygen Limit Fraction: 1 - 200% with 1% resolution

Logbook/dive profile memory:

- Recording interval: 20 seconds adjustable (1,10,20,30,60s).
- Memory capacity: approximately 80 hours of diving with 20 second recording interval
- Depth accuracy: 0.3 m/1 ft

Operating conditions:

- Normal altitude range: 0 to 3,000 m/10,000 ft above sea level
- Operating temperature: 0°C to 40°C/32°F to 104°F
- Storage temperature: -20°C to +50°C/ -4°F to +122°F

It is recommended that the instrument be stored in a dry place at room temperature.

NOTE *Do not leave the dive computer in direct sunlight!*

Tissue calculation model:

- Suunto Deep Stop RGBM algorithm (developed by Suunto and Bruce R. Wienke, BSc, MSc, PhD)
- 9 tissue compartments
- Tissue compartment halftimes: 2.5, 5, 10, 20, 40, 80, 120, 240 and 480 minutes (on gassing). The off gassing halftimes are slowed down

- Reduced gradient (variable) "M" values based on diving habit and dive violations. The "M" values are tracked up to 100 hours after a dive
- The EAN and oxygen exposure calculations are based on recommendations by R.W. Hamilton, PhD and currently accepted exposure time limit tables and principles

Battery:

- One 3 V lithium battery: CR 2450
- Battery storage time (shelf life): Up to three years
- Replacement: Every three years, or more often depending on dive activity
- Life expectancy at 20°C/68°F:
  - 0 dives/year –> 3 years
  - 100 dives/year –>1.5 years
  - 300 dives/year –>1 year

Transmitter:

- One 3V lithium battery: 1/2AA (K5546) and O-ring 2.00 mm x 2.00 mm (K5538)
- Battery storage time (shelf life): Up to three years
- Replacement: Every two years, or more often depending on dive activity
- Life expectancy at 20°C/68°F:
  - 0 dives/year –> 3 years
  - 100 dives/year –> 2 years
  - 400 dives/year –> 1 year

The following conditions have an effect on the expected battery lifetime:

- The length of the dives
- The conditions in which the unit is operated and stored (e.g. temperature/cold conditions). Below 10°C/50°F the expected battery lifetime is about 50-75% of that at 20°C/68°F
- The use of the backlight and audible alarms
- The use of the compass
- The quality of the battery. (Some lithium batteries may exhaust unexpectedly, which cannot be tested in advance)
- The time the dive computer has been stored until it gets to the customer. (The battery is installed in the unit at the factory)

NOTE *Low temperature or an internal oxidation of the battery may activate the battery warning even though the battery has enough capacity. In this case, the warning usually disappears when the DIVE mode is activated again.*

10.2. RGBM

The Suunto Reduced Gradient Bubble Model (RGBM) is a modern algorithm for predicting both dissolved and free gas in the tissues and blood of divers. It was developed in co-operation between Suunto and Bruce R. Wienke BSc, MSc, PhD. It is based on both laboratory experiments and diving data, including data from DAN.

It is a significant advance on the classical Haldane models, which do not predict free gas (microbubbles). The advantage of Suunto RGBM is additional safety through its ability to adapt to a wide variety of situations. Suunto RGBM addresses a number of diving circumstances outside the range of dissolved-gas-only models by:

- Monitoring continuous multiday diving
- Computing closely spaced repetitive diving
- Reacting to a dive deeper than the previous dive
- Adapting to rapid ascents which produce high microbubble (silent-bubble) build-up
- Incorporating consistency with real physical laws for gas kinetics

10.2.1. Suunto RGBM adaptive decompression

The Suunto RGBM algorithm adapts its predictions of both the effects of microbubble build-up and adverse dive profiles in the current dive series. It also changes these calculations according to the personal adjustment you select.

The pattern and speed of decompression at the surface is adjusted according to microbubble influence.

On repetitive dives, adjustment may also be applied to the maximum allowable nitrogen overpressure in each theoretical tissue group.

Depending on the circumstances, Suunto RGBM will adapt the decompression obligations by doing any or all of the following:

- Reducing No-decompression Stop dive times
- Adding Mandatory Safety Stops
- Increasing Decompression Stop times
- Advising an extended surface interval (Diver Attention symbol)

Diver Attention Symbol – Advice to Extend Surface Interval

Some patterns of diving cumulatively add a higher risk of DCI; for example, dives with short surface intervals, repetitive dives deeper than earlier ones, multiple ascents, and substantial multiday diving. When this is detected, in addition to adapting the decompression algorithm, the Suunto RGBM model will in some circumstances also advise, with the Diver Attention Symbol, that you extend your surface interval.

10.2.2. No-decompression limits

The no-decompression limits displayed by the dive computer for the first dive to a single depth (see *Table 10.1, No-decompression time limits for various depths (m)* and *Table 10.2, No-decompression time limits for various depths (ft)* .), are slightly more conservative than those permitted by the U.S. Navy tables.

Table 10.1. No-decompression time limits for various depths (m)

	No-decompression time limits (mins) for various depths (m) for the first dive of a series								
Depth (m)	**Personal Mode / Altitude Mode**								
	P0/A0	**P0/A1**	**P0/A2**	**P1/A0**	**P1/A1**	**P1/A2**	**P2/A0**	**P2/A1**	**P2/A2**
9	--	163	130	163	130	96	130	96	75
12	124	89	67	89	67	54	67	54	45
15	72	57	43	57	43	35	43	35	29
18	52	39	30	39	30	5	30	25	21
21	37	29	23	29	23	20	23	20	15
24	29	24	19	24	19	16	19	16	12
27	23	18	15	18	15	12	15	12	9
30	18	14	12	14	12	9	12	9	7
33	13	11	9	11	9	8	9	8	6
36	11	9	8	9	8	6	8	6	5
39	9	7	6	7	6	5	6	5	4
42	7	6	5	6	5	4	5	4	4
45	6	5	5	5	5	4	5	4	3

Table 10.2. No-decompression time limits for various depths (ft)

	No-decompression time limits (mins) for various depths (ft) for the first dive of a series								
Depth (ft)	**Personal Mode / Altitude Mode**								
	P0/A0	**P0/A1**	**P0/A2**	**P1/A0**	**P1/A1**	**P1/A2**	**P2/A0**	**P2/A1**	**P2/A2**
30	--	160	127	160	127	92	127	92	73
40	120	86	65	86	65	52	65	52	43
50	69	56	41	56	41	34	41	34	28
60	50	38	29	38	29	25	29	25	20
70	36	29	22	29	22	20	22	20	15
80	28	23	19	23	19	15	19	15	11
90	22	18	15	18	15	11	15	11	9
100	17	14	11	14	11	9	11	9	7
110	13	11	9	11	9	7	9	7	6
120	10	9	8	9	8	6	8	6	5
130	9	7	6	7	6	5	6	5	4
140	7	6	5	6	5	4	5	4	4
150	6	5	4	5	4	4	4	4	3

10.2.3. Altitude diving

The atmospheric pressure is lower at high altitudes than at sea level. After traveling to a higher altitude, you will have additional nitrogen in your body, compared to the equilibrium situation at the original altitude. This "additional" nitrogen is released gradually over time and equilibrium is restored. It is recommended that you acclimatize to a new altitude by waiting at least three hours before making a dive.

Before high-altitude diving, the instrument must be set to the Altitude Adjustment mode to adjust the calculations for the new altitude. The maximum partial pressures of nitrogen allowed by the mathematical model of the dive computer are reduced according to the lower ambient pressure.

As a result, the allowed no-decompression-stop limits are considerably reduced.

10.3. Oxygen exposure

The oxygen exposure calculations are based on currently accepted exposure time limit tables and principles. In addition to this, the dive computer uses several methods to conservatively estimate the oxygen exposure. For example:

- the displayed oxygen exposure calculations are raised to the next higher percentage value
- for recreational scuba diving, the recommended upper limit of 1.4 bar PO_2 is used as a default
- the CNS % limits up to 1.6 bar are based on 1991 NOAA Diving Manual limits
- the OTU monitoring is based on the long-term daily tolerance level and the recovery rate is reduced

Oxygen related information displayed by the dive computer is also designed to ensure that all warnings and displays occur at the appropriate phases of a dive. For example, the following information will be shown before and during a dive when the computer is set in NITROX mode:

- the selected O_2% on the alternative display
- OLF% alternative display for either CNS% or OTU% (whichever is larger)

- audible alarms are given and the OLF value starts to blink when the 80% and 100% limits are exceeded
- audible alarms are given and the actual PO_2 value blinks when it exceeds the preset limit
- in dive planning, the maximum depth according to the O_2% and maximum PO_2 selected

11. INTELLECTUAL PROPERTY

11.1. Copyright

This user's manual is copyrighted and all rights are reserved. It may not, in whole or in part, be copied, photocopied, reproduced, or translated to any media without prior written consent from Suunto.

11.2. Trademark

Suunto, Vyper AIR, Consumed Bottom Time (CBT), Oxygen Limit Fraction (OLF), Suunto Reduced Gradient Bubble Model (RGBM), and Continuous Decompression and their logos are all registered or unregistered trademarks of Suunto. All rights are reserved.

11.3. Patent notice

This product is protected by the following patents and patent applications: US 5,845,235 and US11/152,075. Other patents have been applied for.

12. DISCLAIMERS

12.1. User's responsibility

This instrument is intended for recreational use only. Suunto Vyper AIR must not be used for obtaining measurements that require professional or industrial precision.

12.2. CE

The CE mark is used to mark conformity with the European Union EMC directive 89/336/EEC

FIOH, Topeliuksenkatu 41 a A, FI-00250 Helsinki, Finland, notified body no.0430, has EC type-examined this type of personal protective equipment.

EN 250 Respiratory equipment - Open circuit self-contained compressed air diving apparatus – Requirements, testing, marking.

EN 13319 "Diving accessories – Depth gauges and combined depth and time measuring devices – Functional and safety requirements, test methods" is a European diving depth gauge standard. The Suunto Vyper AIR is designed to comply with this standard.

13. SUUNTO LIMITED WARRANTY FOR SUUNTO DIVING COMPUTERS AND SUUNTO DIVING COMPUTER ACCESSORIES

This Limited Warranty is valid as of January 1st, 2007.

Suunto Oy ("Suunto") provides this limited warranty to those who have purchased the Suunto Diving computer and/or Suunto diving computer accessories ("Product").

Suunto warrants that during the Warranty Period Suunto or a Suunto Authorized Service Center will, at its sole discretion, remedy defects in materials or workmanship free of charge either by a) repairing the Product or the parts, or b) replacing the Product or the parts, or c) refunding the purchase price of the Product, subject to the terms and conditions of this Limited Warranty. Your mandatory legal rights under your applicable national laws relating to the sale of consumer products are not affected by this Limited Warranty.

This Limited Warranty is only valid and enforceable in the country in which you purchased the Product, provided that Suunto has intended the Product for sale in that country. If, however, you purchased the Product in a member state of the European Union, Iceland, Norway, Switzerland or Turkey, and Suunto originally intended the Product for sale in one of these countries, this Limited Warranty is valid and enforceable in all of these countries. The warranty service may be limited due to the possible country-specific elements in the Products.

In countries outside the European Union, Iceland, Norway, Switzerland or Turkey, subject to your agreement to pay a service fee and compensation for the possible shipment costs incurred by Suunto or a Suunto Authorized Service Centre, you can have warranty service other than in the country in which you purchased the Product. Any spare parts will be provided free of charge in this case.

Warranty Period

The Warranty Period starts at the date of retail purchase by the original end-user purchaser. The Product may consist of several different parts, and the different parts may be covered by a different warranty period (hereinafter "Warranty Period"). The different Warranty Periods are:

a. Two (2) years for the diving computers;

b. One (1) year for the consumable parts and accessories, including (but not limited to) chargeable batteries, chargers, docking stations, straps, cables and hoses (whether included in the diving computer sales package or sold separately).

To the extent your national laws permit, the Warranty Period will not be extended or renewed or otherwise affected due to subsequent resale, Suunto authorized repair or replacement of the Product. However, part(s) repaired or replaced during the Warranty Period will be warranted for the remainder of the original Warranty Period or for three (3) months from the date of repair or replacement, whichever is longer.

Exclusions and Limitations

This Limited Warranty does not cover:

1. a) normal wear and tear, b) defects caused by rough handling (including, without limitation, defects caused by sharp items, by bending, compressing or dropping, etc.), or c) defects or damage caused by misuse of the Product, including use that is contrary to the instructions provided by Suunto (e.g. as set out in the Product's user guide and/instruction manual), and/or e) other acts beyond the reasonable control of Suunto;
2. user manuals or any third-party software (even if packed or sold with the Suunto hardware), settings, content or data, whether included or downloaded in the Product, or whether included during installment, assembly, shipping or at any other time in the delivery chain or otherwise and in any way acquired by you;
3. defects or alleged defects caused by the fact that the Product was used with, or connected to, any product, accessory, software and/or service not manufactured or supplied by Suunto, or was used otherwise than for its intended use;
4. replaceable batteries.

This Limited Warranty is not enforceable if:

1. the Product has been opened, modified or repaired by anyone other than Suunto or a Suunto Authorized Service Centre;
2. the Product has been repaired using unauthorized spare parts;
3. the Product's serial number has been removed, erased, defaced, altered or made illegible in any way - and this shall be determined at the sole discretion of Suunto;
4. the Product has been exposed to influence from chemical products including (but not limited to) mosquito repellents.

Suunto does not warrant that the operation of the Product will be uninterrupted or error free, or that the Product will work in combination with any hardware or software provided by a third party.

Access to Suunto warranty service

Please access and review the online help resources available at www.suunto.com / customer service or referred to in the Product manual before seeking warranty service.

If a claim under this Limited Warranty appears to be necessary, please contact your local authorized Suunto retailer – for contact information please visit the Suunto website www.suunto.com or call a Suunto Help Desk (national or premium rates may apply) for further details on how to make a claim. You will then be advised on how to bring your Product for warranty service. Should you wish to return the Product by shipping it to your local authorized Suunto retailer, please use prepaid freight. When making a claim under this Limited Warranty you are required to include your name and address, proof of purchase and/or service registration card (Suunto warranty registration at www.suunto.com is considered adequate for this purpose), as required in your country, which clearly indicates the serial number, name and address of the seller, the date and place of purchase, and the product type. The claim will be honored and the Product repaired or replaced at no charge and returned in a reasonable amount of time. This shall be determined at the sole discretion of Suunto or a Suunto Authorized Service Center. If the Product is found not to be covered by the terms and conditions of this Limited Warranty, Suunto or a Suunto Authorized Service Centre reserve the right to charge a handling fee.

Any claim under this Limited Warranty is subject to you notifying Suunto or a Suunto Authorized Service center of the alleged defect within a reasonable time of it having come to your attention, and in any event no later than before the expiry of the Warranty Period.

Other important notices

Please remember to take backup copies of all important content and data stored in your Product because content and data may be lost during repair or replacement of the Product. Suunto or a Suunto Authorized Service Centre is not responsible for any damage or loss of any kind whatsoever resulting from loss of, damage to, or corruption of content or data during repair or replacement of the Product.

When the Product or a part is replaced, any replaced item becomes the property of Suunto. If a refund is given, the Product for which the refund is given must be returned to a Suunto Authorized Service Centre as it becomes the property of Suunto and/or Suunto Authorized Service Centre.

When repairing or replacing the Product, Suunto or a Suunto Authorized Service Centre may use products or parts that are new, equivalent to new or re-conditioned.

Limitation of Liability

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE MANDATORY LAWS, THIS LIMITED WARRANTY IS YOUR SOLE AND EXCLUSIVE REMEDY AND IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED. SUUNTO SHALL NOT BE LIABLE FOR SPECIAL, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOSS OF ANTICIPATED BENEFITS OR PROFITS, LOSS OF SAVINGS OR REVENUE, LOSS OF DATA, PUNITIVE DAMAGES, LOSS OF USE OF THE PRODUCT OR ANY ASSOCIATED EQUIPMENT, COST OF CAPITAL, COST OF ANY SUBSTITUTE EQUIPMENT OR FACILITIES, DOWNTIME, THE CLAIMS OF ANY THIRD PARTIES, INCLUDING CUSTOMERS, AND INJURY TO PROPERTY

RESULTING FROM THE PURCHASE OR USE OF THE PRODUCT OR ARISING FROM BREACH OF THE WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, STRICT TORT, OR ANY OTHER LEGAL OR EQUITABLE THEORY, EVEN IF SUUNTO KNEW OF THE LIKELIHOOD OF SUCH DAMAGES. SUUNTO SHALL NOT BE LIABLE FOR DELAY IN RENDERING SERVICE UNDER THE LIMITED WARRANTY, OR LOSS OF USE DURING THE TIME THE PRODUCT IS BEING REPAIRED.

14. DISPOSAL OF THE DEVICE

Please dispose of the device in an appropriate way, treating it as electronic waste. Do not throw it in the garbage. If you wish, you may return the device to your nearest Suunto representative.

GLOSSARY

Altitude dive	A dive made at an elevation greater than 300 m/1000 ft above sea level.
Ascent rate	The speed at which the diver ascends toward the surface.
ASC RATE	Abbreviation for ascent rate.
Ascent time	The minimum amount of time needed to reach the surface on a decompression stop dive.
ASC TIME	Abbreviation for ascent time.
Ceiling	On a decompression stop dive, the shallowest depth to which a diver may ascend based on computed nitrogen load.
Central nervous system toxicity	Toxicity caused by oxygen. Can cause a variety of neurological symptoms. The most important of which is an epileptic-like convulsion which can cause a diver to drown.
CNS	Abbreviation for central nervous system toxicity.
CNS%	Central nervous system toxicity limit fraction. Also note Oxygen Limit Fraction
Compartment	See "Tissue group".
DAN	Abbreviation for Divers Alert Network.
DCI	Abbreviation for decompression illness.
Decompression	Time spent at a decompression stop, or range, before surfacing, to allow absorbed nitrogen to escape naturally from tissues
Decompression range	On a decompression stop dive, the depth range between the floor and the ceiling within which a diver must stop for some time during ascent.
Decompression illness	Any of a variety of maladies resulting either directly or indirectly from the formation of nitrogen bubbles in tissues or body fluids, as a result of inadequately controlled decompression. Commonly called "the bends" or "DCI".
Dive series	A group of repetitive dives between which the dive computer indicates some nitrogen loading is present. When nitrogen loading reaches zero the dive computer deactivates.
Dive time	Elapsed time between leaving the surface to descend, and returning to the surface at the end of a dive.
EAD	Abbreviation for equivalent air depth.
EAN	Abbreviation for enriched air nitrox.
Enriched air nitrox	Also called nitrox or Enriched Air = EANx. Air that has some oxygen added. Standard mixes are EAN32 (NOAA Nitrox I = NN I) and EAN36 (NOAA Nitrox II = NN II).
Equivalent air depth	Nitrogen partial pressure equivalent table.
Floor	The deepest depth during a decompression stop dive at which decompression takes place.
Half time	After a change in ambient pressure, the amount of time required for the partial pressure of nitrogen in a theoretical compartment to go half way from its previous value to saturation at the new ambient pressure.
Multi level dive	A single or repetitive dive that includes time spent at various depths and whose no decompression limits are therefore not determined solely by the maximum depth attained.
Nitrox	In sports diving, refers to any mix with a higher fraction of oxygen than standard air.
NOAA	United States National Oceanic and Atmospheric Administration.
No decompression time	The maximum amount of time a diver may remain at a particular depth without having to make decompression stops during the subsequent ascent.
No decompression dive	Any dive which permits a direct, uninterrupted ascent to the surface at any time.

NO DEC TIME	Abbreviation for no decompression time limit.
OEA = EAN = EANx	Abbreviations for oxygen enriched air nitrox.
OLF	Abbreviation for oxygen limit fraction.
OTU	Abbreviation for oxygen tolerance unit.
Oxygen tolerance unit	Used to measure the whole-body-toxicity.
Oxygen limit fraction	A term used by Suunto for the values displayed in the oxygen toxicity bar graph. The value is either the CNS% or the OTU%.
O_2%	Oxygen percentage or oxygen fraction in the breathing gas. Standard air has 21% oxygen.
Oxygen partial pressure	Limits the maximum depth to which the nitrox mixture can be safely used. The maximum partial pressure limit for enriched air diving is 1.4 bar. The contingency partial pressure limit is 1.6 bar. Dives beyond this limit risk immediate oxygen toxicity.
PO_2	Abbreviation for oxygen partial pressure.
RGBM	Abbreviation for Reduced Gradient Bubble Model.
Reduced Gradient Bubble Model	Modern algorithm for tracking both dissolved and free gas in divers.
Repetitive dive	Any dive whose decompression time limits are affected by residual nitrogen absorbed during previous dives.
Residual nitrogen	The amount of excess nitrogen remaining in a diver after one or more dives.
SURF TIME	Abbreviation for surface interval time.
Surface interval time	Elapsed time between surfacing from a dive and beginning a descent for the subsequent repetitive dive.
Tissue group	Theoretical concept used to model bodily tissues for the construction of decompression tables or calculations.
Whole-body toxicity	Another form of oxygen toxicity, which is caused by prolonged exposure to high oxygen partial pressures. The most common symptoms are irritation in the lungs, a burning sensation in the chest, coughing and reduction of the vital capacity. Also called Pulmonary Oxygen Toxicity. See also OTU.

CUSTOMER SERVICE CONTACTS

Global Help Desk	+358 2 284 11 60
Suunto USA Phone	+1 (800) 543-9124
Canada Phone	+1 (800) 267-7506
Suunto website	www.suunto.com

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SUUNTO

TWO YEAR WARRANTY

This product is warranted to be free of defects in material and/or workmanship to the original owner for the above noted period (does not include battery life). Keep a copy of the original purchase receipt and make sure to get this warranty card stamped at the place of purchase. The warranty originates from the date of purchase.

All warranties are limited and are subject to the restrictions given in the instruction manual. This warranty does not cover the damage to the product resulting from improper usage, improper maintenance, neglect of care, alteration, improper battery replacement or unauthorized repair.

Suunto's dive computers and wristop computers can be registered online at www.suunto.com.

Model of Dive Computer

Serial number:

_____ |_|_|_|_|_|_|_|_|

_____ |_|_|_|_|_|_|_|_|

_____ |_|_|_|_|_|_|_|_|

_____ |_|_|_|_|_|_|_|_|

Date of purchase _____

Place of purchase/Store name _____

Store City _____ Store Country _____

Store stamp with date of purchase

Name _____

Address _____

City _____ Country _____

Telephone _____ E-mail _____

Signature

_____

www.suunto.com

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